

JVC

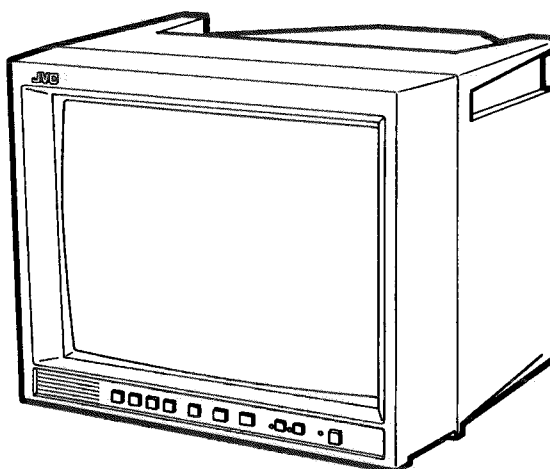
SERVICE MANUAL

COLOR VIDEO MONITOR

TM-A13SU
TM-A13SU-W
TM-A13UCV

BASIC CHASSIS

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SPECIFICATIONS

Item		Content	
		TM-A13SU TM-A13SU-W	TM-A13UCV
Color system		PAL / NTSC 3.58	
Picture tube		13cm measured diagonally, 90° deflection; in-line gun, vertical line trio type (phosphor stripe pitch 0.64 mm)	
Effective screen size		11-1/8" (280.8mm) × 8-3/8" (210.6mm) (W × H) / 13-1/4" (335.4mm) (Diagonal)	
Scanning frequency		(H) 15.734 kHz (NTSC) / 15.625 kHz (PAL) (V) 59.94 Hz (NTSC) / 50Hz (PAL)	
Horizontal resolution		320TV line or more (NTSC)	
High Voltage		21.6kV~23.6kV	
Input terminal	VIDEO A	Composite video : 1 line, BNC connector × 2, 1Vp-p, 75 Ω negative sync (bridge connection possible, auto termination)	
	VIDEO B	Composite video : 1 line, BNC connector × 2, 1Vp-p, 75 Ω negative sync (bridge connection possible, auto termination)	
		Y/C-separated : 1 line, mini-DIN 4-pin connector × 1 Y : 1.0Vp-p 75 Ω C : 0.286Vp-p 75 Ω (NTSC) 0.3Vp-p 75 Ω (PAL)	_____
		1 line (monaaural), RCA pin × 2, 0.5V rms, high-impedance (bridge connection possible)	_____
	AUDIO B	1 line (monaaural), RCA pin × 2, 0.5V rms, high-impedance (bridge connection possible)	_____
Audio power output		1W (Monaural)	_____
Speaker		8cm round × 1 8 Ω	_____
Power requirements		120V AC, 50/60 Hz	←_____
Power consumption		0.87A (120V AC)	0.77A (120V AC)
Operation temperature		0° ~40°C (32° ~104° F)	←_____
Operation humidity		20~80% (non-condensing)	←_____
Dimension (W × H × D)		14-1/2"(368mm) × 12-1/4" (310mm) × 14-3/4" (371.5mm)	
Mass		9.6kg	9.5kg

Design & specifications are subject to change without notice.

OPERATING INSTRUCTIONS

- Since the operating method of the model TM-A13SU-W is the same as for that of the model TM-A13SU, use the INSTRUCTION MANUAL for the model TM-A13SU.

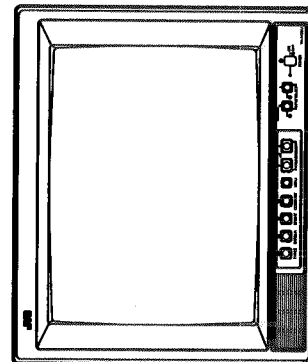
JVC®

TM-A13SU/TM-A13UCV COLOR VIDEO MONITOR

COLOR VIDEO MONITOR

INSTRUCTIONS

TM-A13SU
TM-A13UCV



(TM-A13SU shown)

For Customer Use:
Enter below the Model No. and Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. : _____
Serial No. : _____

LCT0234-001A-H
0798-TU-U-JMT

JVC®

JVC PROFESSIONAL PRODUCTS COMPANY
DIVISION OF JVC CORP.
41 Slater Drive, Elmwood Park, N.J. 07407
JVC CANADA INC.
21 Finchdene Square, Scarborough Ontario M1X 1A7

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Thank you for purchasing this JVC color video monitor. Before using it, read and follow all instructions carefully to take full advantage of the monitor's capabilities.

SAFETY PRECAUTIONS

WARNING :

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS MONITOR TO RAIN OR MOISTURE.

CAUTION :

To reduce the risk of electric shock, do not remove cover. Refer servicing to qualified service personnel.

This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

FCC INFORMATION (U.S.A. only)

CAUTION: Changes or modification not approved by JVC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

■ PRECAUTIONS

- Use only the power source specified on the unit. (120 V AC, 50/60 Hz)
- Keep flammable material, water, and metal objects away from the unit – especially the interior of the unit.
- This unit incorporates high voltage circuitry. For your own safety and that of your equipment, do not attempt to modify or disassemble this monitor. There are no user-serviceable parts inside.
- Unplug the monitor when you're not going to be using it for a long period.

■ HANDLING

- Avoid shocks or vibrations. These may damage the unit and cause it to malfunction.
- Do not block the ventilation slots.
- Do not expose this unit to high temperatures. Extended exposure to direct sunlight or a heater could deform the cabinet or cause the performance of internal components to deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. There can generate picture noise and instability.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzene. These chemicals can damage the finish and erase printed letters. When the unit is excessively dirty, use a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

SCREEN BURN

- It is not recommended to keep a certain still image displayed on screen for a long time as well as displaying extremely bright images on screen. This may cause a burning (sticking) phenomenon on the screen of cathode-ray tube. This problem does not occur as far as displaying normal video playback motion images.

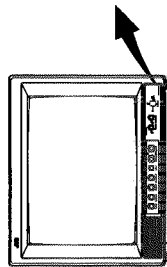
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CONTROLS AND FEATURES

FRONT VIEW

<Front Panel>

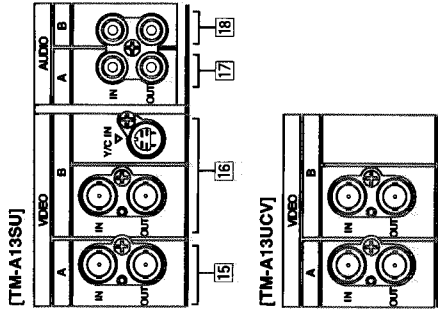


(Front view of TM-A13SU shown)

- 1 Phase button [PHASE]**
Press this button to set the picture hue adjustment mode. Adjust the value with the VOLUME/SELECT or the SELECT buttons. Also used as a control button in the menu function mode.
- 2 Chroma button [CHROMA]**
Press this button to set the picture color density adjustment mode. Adjust the value with the VOLUME/SELECT or the SELECT buttons. Also used as a control button in the menu function mode.
- 3 Brightness button [BRIGHT]**
Press this button to adjust picture brightness. Adjust the value with the VOLUME/SELECT or the SELECT buttons. Also used as a control button in the menu function mode.
- 4 Contrast button [CONTRAST]**
Press this button to adjust picture contrast. Adjust the value with the VOLUME/SELECT or the SELECT buttons. Also used as a control button in the menu function mode.
- 5 Menu button [MENU]**
Displays and disappears the <MENU> screen. Pressing the PHASE button with the Menu button depressed will display the <SETUP MENU> screen.
- 6 Volume/Select buttons [VOLUME/SELECT - +]** (TM-A13SU only)
Adjusts the speaker volume. Also used as a control button in the menu function mode.
- 7 Select buttons [SELECT - +]** (TM-A13UCV only)
Used as a control button in the menu function mode.
- 8 Input B button [INPUT SELECT B]**
Selects the video signal input to the VIDEO B terminal and the audio signal input to the AUDIO B terminal (RCA connector) on the rear panel. When selected, the input B indicator lights.

REAR VIEW

<Rear Panel>



To AC outlet
(120 V AC, 50/60 Hz)

- 15 Video A terminals [VIDEO A IN/OUT]**
The video signal input (IN) and output (OUT) terminals. The output terminal is bridge-connected.
IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal
Notes:
* For corresponding audio signals, use the AUDIO A terminals .
* There is no AUDIO A terminal on the TM-A13UCV. It is only available on the TM-A13SU.
* Also refer to the Basic connection Example on page 11.
- 16 Video B terminals [VIDEO B IN/OUT]**
The video signal input (IN) and output (OUT) terminals. The output terminal is bridge-connected.
IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal
Notes:
* For corresponding audio signals, use the AUDIO A terminals .
* There is no AUDIO A terminal on the TM-A13UCV. It is only available on the TM-A13SU.
* Also refer to the Basic connection Example on page 11.
- 17 Audio A terminal [AUDIO A IN/OUT]** (TM-A13SU only)
Input (IN) and output (OUT) terminals for the audio signal corresponding to the VIDEO A terminals . The output terminal is bridge-connected.
IN : Audio signal input terminal
OUT : Bridge-connected audio signal output terminal
Notes:
* For corresponding video signals, use the VIDEO A terminal .
* There is no AUDIO A terminal on the TM-A13UCV. It is only available on the TM-A13SU.
* Also refer to the Basic connection Example on page 11.
- 18 Audio B terminals [AUDIO B IN/OUT]** (TM-A13SU only)
Input (IN) and output (OUT) terminals for the audio signals corresponding to the VIDEO B terminals . The output terminal is bridge-connected.
IN : Audio signal input terminal
OUT : Bridge-connected audio signal output terminal
Notes:
* For corresponding video signals, use the VIDEO B terminals .
* There is no Y/C terminal or AUDIO B terminal on the TM-A13UCV. They are only available on the TM-A13SU.
* Also refer to the Basic connection Example on page 11.
- 19 AC Inlet [AC IN]**
Power input connector. Connect the provided AC power cord to an AC outlet (120 V AC, 50/60 Hz).
- 20 Power cord**
Connects the provided power cord (120 V AC, 50/60 Hz) to the AC IN connector.

HOW TO HANDLE BASIC OPERATIONS

BASIC OPERATION

1. Press the **POWER switch** to turn on the power.
2. Press the **INPUT SELECT** button to choose input.

① : Power turns ON. (Power indicator: lit)
② : Power turns OFF. (Power indicator: unlit)

Selects video/audio signals input to terminals on the rear panel.

INPUT SELECT Button	Video signal input	Audio signal input
① Input A	VIDEO A terminal	AUDIO A terminal
② Input B	VIDEO B terminal	AUDIO B terminal

* Audio signal input is not available on the TM-A13UCV.

3. Press the **VOLUME/SELECT** button to adjust the speaker volume. (Audio is only available on the TM-A13SU.)

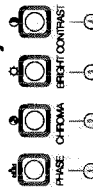
Press this button to display the speaker volume level on the screen.
+ : The Built-in speaker volume is increased. (00 → 50)
- : The Built-in speaker volume is decreased. (50 → 00)
* Screen indication will disappear about 10 seconds after operating.



PICTURE ADJUSTMENT

1. Press select button corresponding to the item you want to adjust.

The item you select is displayed on the screen.
① PHASE () : Phase control
② CHROMA () : Chroma control
③ BRIGHT () : Brightness control
④ CONTRAST () : Contrast control



2. Adjust with the **VOLUME/SELECT** or the **SELECT** button.



Items	VOLUME/SELECT button
PHASE (Phase)	reddish
CHROMA (Chroma)	lighter
BRIGHT (Brightness)	darker
CONTRAST (Contrast)	lower

* Screen indication will disappear about 10 seconds after operating.

HOW TO USE THE MENU FUNCTIONS DISPLAY AND SELECTION IN THE <MENU> SCREEN MODE (SETTING)

You can set the following menu items.
Set them depending on your needs.

- SHARPNESS
- COLOR SYSTEM

1. Press the **MENU** button.

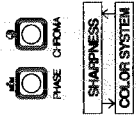
The <MENU> screen is displayed.



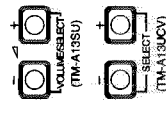
2. Press the **PHASE** () or **CHROMA** () button to select MENU items.

A selection mark () is put next to the selected item.

Front panel button	Function displayed	Contents
PHASE ()	▼	Advance selection mark ()
CHROMA ()	▲	Reverse selection mark ()



3. Press the **VOLUME/SELECT** or the **SELECT** button to set.



Front panel button	Function displayed	Contents
VOLUME/SELECT () or SELECT ()	+	Increase (to max. value)
VOLUME/SELECT () or SELECT ()	-	Decrease (to min. value)
VOLUME/SELECT () or SELECT ()	◀	Reverse the setting value

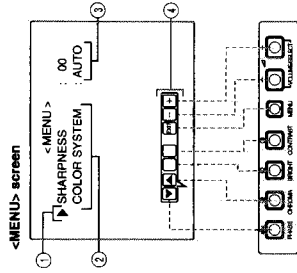
* Normally set the COLOR SYSTEM to the AUTO mode. If reception in the AUTO mode is not good, set it to the exclusive mode (NTSC or PAL) corresponding to the received color system.

4. If you want to set the other menu items, repeat procedures 2 and 3.

5. Press the **MENU** button to quit.



Front panel button	Function displayed	Contents
MENU	EXIT	Quit (or Release) the <MENU> screen



- ① Selection mark () : Indicates the menu item you select.
- ② Menu item : Menu items you can select.
- ③ Setting display : Indicates the current settings (value).
- ④ Function display : The functions of the front panel buttons () on the left correspond to the function displayed.

Function displayed	Contents
▼	Advance the menu item.
▲	Reverse the menu item.
-	Lower the adjustment value (to the minimum)
+	Raise the adjustment value (to the maximum)
◀	Advance the setting value.
▶	Reverse the setting value.
EXIT	Exits the <MENU> screen.

HOW TO USE THE MENU FUNCTIONS (cont'd)

DISPLAY AND SELECTIONS IN THE <SET-UP MENU> MODE (SETTING)

You can set the following set-up menu items:

- H. POSITION
- WHITE BALANCE
- CONTROL LOCK

Note:

- Parameters for H. POSITION can be set separately depending on the video input (Input A or Input B) selected by the input select buttons on the front panel. Select the required video input with the input select buttons on the front panel in advance.

1. While pressing the **MENU** button, press the **PHASE** () button.

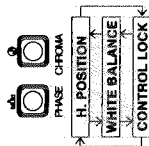
The <SET-UP MENU> screen is displayed.



2. Press the **PHASE** () or **CHROMA** () button to select the desired menu item.

A selection mark (►) is put next to the selected item.

Front panel button	Function displayed	Contents
PHASE ()	▼	Advance selection mark (▶)
CHROMA ()	▲	Reverse selection mark (◀)

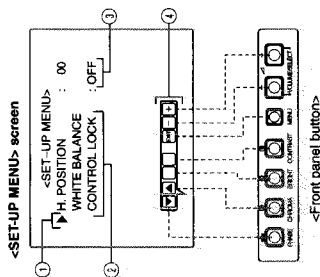


3. Press the **VOLUME/SELECT** or the **SELECT** button to set.

Front panel button	Function displayed	Contents
VOLUME/ SELECT (+) or SELECT (+)	+ ▶ CUTO	Increase (to max. value) Advance the setting value Selects CUT OFF setting screen
VOLUME/- or SELECT (-) or SELECT (-)	- ◀ DRV	Decrease (to min. value) Reverse the setting value Selects DRIVE setting screen

Notes:

- For the WHITE BALANCE setting, select the CUT OFF or DRIVE setting screen, then select the buttons (PHASE/CHROMA/BRIGHT) corresponding to the function indicated (R/G/B).
- To return to the <SET-UP MENU> screen, press the EXIT (MENU) button.



- ① **Selection mark (▶):** Indicates the menu item you select.
- ② **Menu item:** Menu items you can select.
- ③ **Setting display:** Indicates the current settings (value).
- ④ **Function display:** The functions of the front panel buttons (7 buttons on the left.) correspond to the function displayed.

Function displayed	Contents
▶	Advance the menu item.
▲	Reverse the menu item.
-	Lower the adjustment value, (to the minimum)
+	Raise the adjustment value, (to the maximum)
▶	Advance the setting value.
◀	Reverse the setting value.
EXIT	Exit the «SETUP MENU» screen (release)
DRV	Selects DRV adjustment
CUTO	Selects CUT OFF adjustment
R	Adjusts red signal level
G	Adjusts green signal level
B	Adjusts blue signal level
DISP	Turns the ON-SCREEN display on or off. (This function is effective only in the DRIVE or CUT OFF adjustment mode.)

Set-up menu items	Purpose	Settings
H. POSITION	Adjusts the horizontal position of the screen (+ : Horizontal position shifts to the right/- : Horizontal position shifts to the left)	-05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
WHITE BALANCE	Adjusts the white balance	Selects DRIVE (DRV) or CUT OFF (CUTO) adjustment. Screen setting is changed to the selected setting mode. Select: R/G/B buttons corresponding to the function display to adjust.
DRIVE	Adjusts red level	-09 ↔ -08 ↔ -07 ↔ -06 ↔ -05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
B.DRIVE	Adjusts blue level	-09 ↔ -08 ↔ -07 ↔ -06 ↔ -05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
CUT OFF	Adjusts red cut off	-09 ↔ -08 ↔ -07 ↔ -06 ↔ -05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
G. CUT OFF	Adjusts green cut off	-09 ↔ -08 ↔ -07 ↔ -06 ↔ -05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
B. CUT OFF	Adjusts blue cut off	-09 ↔ -08 ↔ -07 ↔ -06 ↔ -05 ↔ -04 ↔ -03 ↔ -02 ↔ -01 ↔ 00 ↔ +01 ↔ +02 ↔ +03 ↔ +04 ↔ +05
CONTROL LOCK	Sets the operation buttons on the front panel to control lock mode	OFF ↔ ON

4. To set the other set-up menu items, repeat the procedures 2 and 3.

5. Press the *MENU* button to quit.



Front panel button	Function displayed	Contents
MENU	EXIT	Quit (or Release) the <MENU> screen

Notes:

- When the **CONTROL LOCK** function is set to ON, pressing operation buttons on the front panel will display the message "CONTROL LOCK ON!" on the screen for about 3 seconds.
- The **CONTROL LOCK** function is maintained even when the power is turned off.
- To turn off the **CONTROL LOCK** function, while holding the **MENU** button, press the **PHASE** button. Then set the **CONTROL LOCK** function to OFF.
- Even when the **CONTROL LOCK** function is set to ON, the following operations are available:
 - Power Switch operation.
 - Sound volume adjustment with the **VOLUME/SELECT** button. (Audio is only available on the TW-A13SL)
 - Display or disappear of the <SET-UP MENU> screen.

HOW TO INITIALIZE THE SETTING

SCREEN DISPLAY AND SELECTIONS IN THE <SET-UP MENU> RESET MODE

You can set <MENU> and <SET-UP MENU> screen items, picture adjustment items and the volume level to their factory-set (initial) values.

1. Press the Power (⏻) Switch to turn the power OFF (■).



2. While pressing both MENU button and PHASE button, press the Power (⏻) switch to turn the power ON (■).



The <SET-UP MENU> RESET screen is displayed.

Note:

- The <SET-UP MENU> RESET screen will not be displayed if the MENU or PHASE buttons are pressed for a very short time. Keep pressing them until the display screen appears.

3. Setting

● Initialization is required.



Press the CONTRAST (■) button.

- When initialization is completed, and the <SET-UP MENU> RESET screen disappears.

● Initialization is not required.

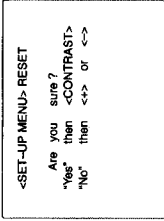


Press the VOLUME/SELECT [+] or [-] button or the SELECT [+] or [-] button.

- Initialization is aborted, and the <SET-UP MENU> RESET screen disappears.



<SET-UP MENU> RESET screen



Initial settings

Sort	Functions (Items)	Initialization (setting)
<MENU> screen	SHARPNESS	00
	COLOR SYSTEM	AUTO
	H. POSITION	00
	WHITE BALANCE	00
<SET-UP MENU> screen	R. CUT OFF	00
	G. CUT OFF	00
	B. CUT OFF	00
	P. DRIVE	00
<SET-UP MENU> screen	B. DRIVE	00
	CONTROL LOCK	OFF
	PHASE	00
	CHROMA	00
Volume adjustment	CONTRAST	00
	BRIGHT	00
	VOLUME	20

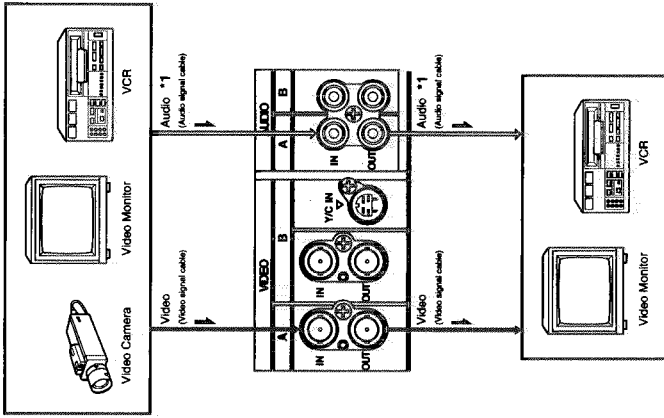
* Volume is only available on the TM-A13SU.

BASIC CONNECTION EXAMPLE

Notes:

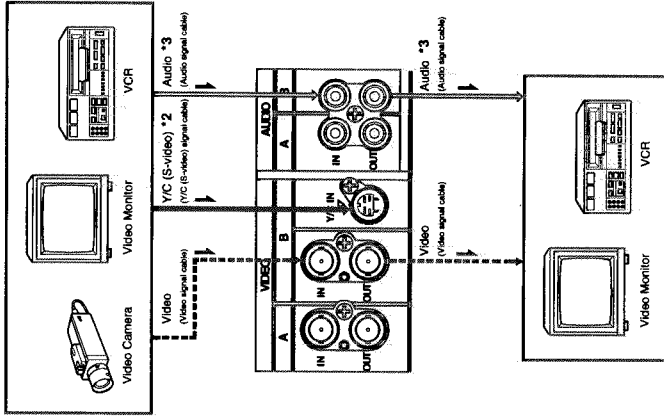
- Before connecting your system, make sure that all units are turned off.
- The illustration below shows some examples of different connections. Terminal connections may differ depending on the component connected. Be sure to refer to the instructions provided with the unit(s) you are connecting.
- Each pair of input (IN) and output (OUT) terminals are bridge-connected. However, the Y/C input terminal (Y/C IN) has no output terminal (OUT) corresponding to it. (There is no Y/C terminal on the TM-A13UCV.)
- If you're not connecting any equipment to a bridged output (OUT) terminal, be sure not to connect any other cables to the bridged output (OUT) terminal as this will cause the terminating resistance switch to open (auto terminate function).
- When making a bridge connection, connect the input (IN) and output (OUT) terminals on the monitor to separate video components.
- (For example, if both terminals are connected to the same VCR, resonance may occur except during playback. This is caused by the same video signal "looping" between the VCRs, and is not a malfunction.)
- Select the video input (Input A or Input B) with the input select button on the front panel.
- There is no Y/C terminal or AUDIO terminal on the TM-A13UCV.

VIDEO A Connection Example (Select Input A button)



↓ : Signal Flow

VIDEO B Connection Example (Select Input B button)



↓ : Signal Flow

*1 : Connection is only possible to the TM-A13SU. There is no audio terminal on the TM-A13UCV.

*2 : Connection is only possible to the TM-A13SU. There is no Y/C terminal on the TM-A13UCV.

*3 : Connection is only possible to the TM-A13SU. There is no audio terminal on the TM-A13UCV.

TROUBLESHOOTING

Solutions to common problems related to your monitor are described here. If none of the solutions presented here solves the problem, unplug the monitor and consult a JVC-authorized dealer or service center for assistance.

Note:

- Audio is only available on the TM-A13SU. It is not available on the TM-A13UCV.

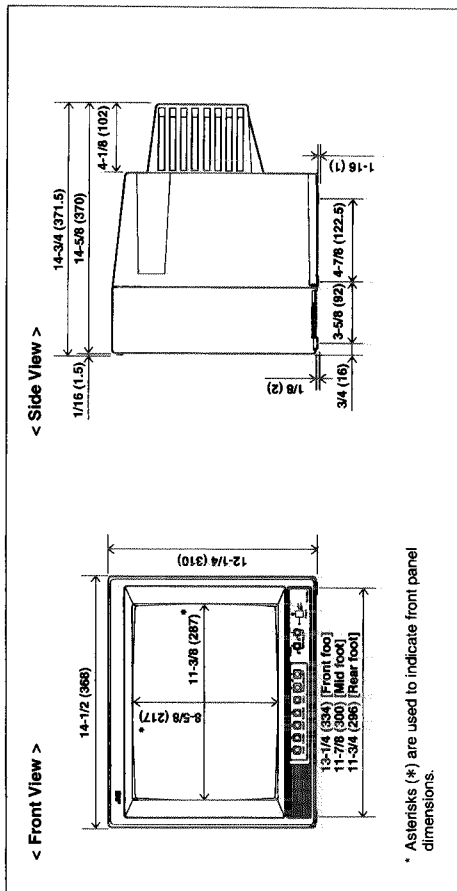
Problems	Points to be checked	Measures (Remedy)
No power supply.	Is the power plug loosened or disconnected?	Firmly insert the power plug.
No picture with the power on.	Is the video signal output from the connected component?	Set the connected component correctly.
	Is the input signal selected properly?	Select the required video signal input with the Input select button. (See page 6.)
	Is the video cable disconnected?	Connect the video signal cable firmly. (See page 11.)
No sound. (TM-A13SU only)	Is the audio signal output from the connected component?	Set the connected component correctly.
	Is the volume output set to minimum?	Adjust the speaker volume with the VOLUME/SELECT button. (See page 6.)
	Is the audio cable disconnected?	Connect the audio signal cable firmly. (See page 11.)
Shaking picture.	Is the monitor close to a device generating a strong magnetic field?	Move the device away from the monitor until the picture stabilizes.
No colors, wrong color, or dark picture.	Is the color system selected properly?	Set the COLOR SYSTEM in the <MENU> screen mode to [AUTO] mode. (See page 7.)
	Has the picture control setting (CONTRAST, BRIGHT, CHROMA or PHASE) been changed?	Set each picture control to the standard setting. (See page 6.)
Unnatural, irregularly colored, or distorted picture.	Is the monitor close to a speaker, magnet or any other device generating a strong magnetic field?	Move the device away from the monitor and turn the monitor's power off. Wait at least 30 minutes, then turn the power on again.
Front panel button does not function.	Are the operation buttons on the front panel locked? (Has CONTROL LOCK function set to ON?)	Set the CONTROL LOCK to OFF in the <SET-UP MENU> screen mode. (See pages 8 and 9.)

The following are not malfunctions:

- When a bright still image (such as a white cloth) is displayed for a long period, it may appear to be colored. This is due to the structure of the cathode ray tube and will be deleted when another image is displayed.
 - You experience a mild electric shock when you touch the picture tube. This phenomenon is due to a normal buildup of static electricity on the CRT, and is not harmful.
 - The monitor emits a strange sound when the room temperature changes suddenly. This is only a problem if an abnormality appears on the screen as well.
 - If two or more monitors are operated next to each other, their images may shake or be distorted. This phenomenon is due to mutual interference; it is not a malfunction.
- Move the monitors away from each other until the interference disappears or turn the power off on any monitor that is not being used.

Dimensions

Unit: Inch (mm)



Y/C (Mini DIN 4 pin) terminal specification



Pin No.	Signal
1	GND (Y)
2	GND (C)
3	Y
4	C

SPECIFICATIONS

MODEL		TM-A13SU	TM-A13UCV
Type		Color video monitor	
Color system		NTSC (3.58), PAL	
Picture tube		13" measured diagonally, 90° deflection, in-line gun, vertical line trio type (phosphor stripe pitch 0.64 mm)	
Effective screen size		Width	11-1/8" (280.8 mm)
		Height	8-3/8" (210.6 mm)
		Diagonal	13-1/4" (335.4 mm)
Scanning frequency		H : 15.734 kHz (NTSC), 15.625 kHz (PAL) V : 59.94 Hz (NTSC), 50 Hz (PAL)	
Horizontal resolution		320 TV lines or more (NTSC)	
Input terminals	VIDEO A	Composite video: 1 line, BNC connector x 2, 1 Vp-p, 75 Ω negative sync (bridge connection possible, auto termination)	
	VIDEO B	Composite video: 1 line, BNC connector x 2, 1 Vp-p, 75 Ω negative sync (bridge connection possible, auto termination)	
		Y/C-separated: 1 line, mini-DIN 4-pin connector x 1 Y: 1.0 Vp-p, 75 Ω C: 0.286 Vp-p, 75 Ω (NTSC), 0.3 Vp-p, 75 Ω (PAL)	
		AUDIO A	1 line (monaural), RCA pin x 2, 0.5 V rms, high-impedance (bridge connection possible)
	AUDIO B	1 line (monaural), RCA pin x 2, 0.5 Vrms, high-impedance (bridge connection possible)	
Audio power output		1 W (monaural)	
Built-in speaker		8 cm round x 1, impedance of 8 Ω	
Environmental conditions		Operation temperature: 0 – 40 °C (32 – 104 °F) Operation humidity: 20 – 80% (non-condensing)	
Power requirements		120V AC, 50/ 60 Hz	
Power consumption		0.87 A (120 V AC)	0.77 A (120 V AC)
Dimensions		Width	14-1/2" (368 mm)
		Height	12-1/4" (310 mm)
		Depth	14-3/4" (371.5 mm)
Weight		9.6 kg	9.5 kg
Accessory		AC power cord [7.87 ft (2.4 m)] x 1	

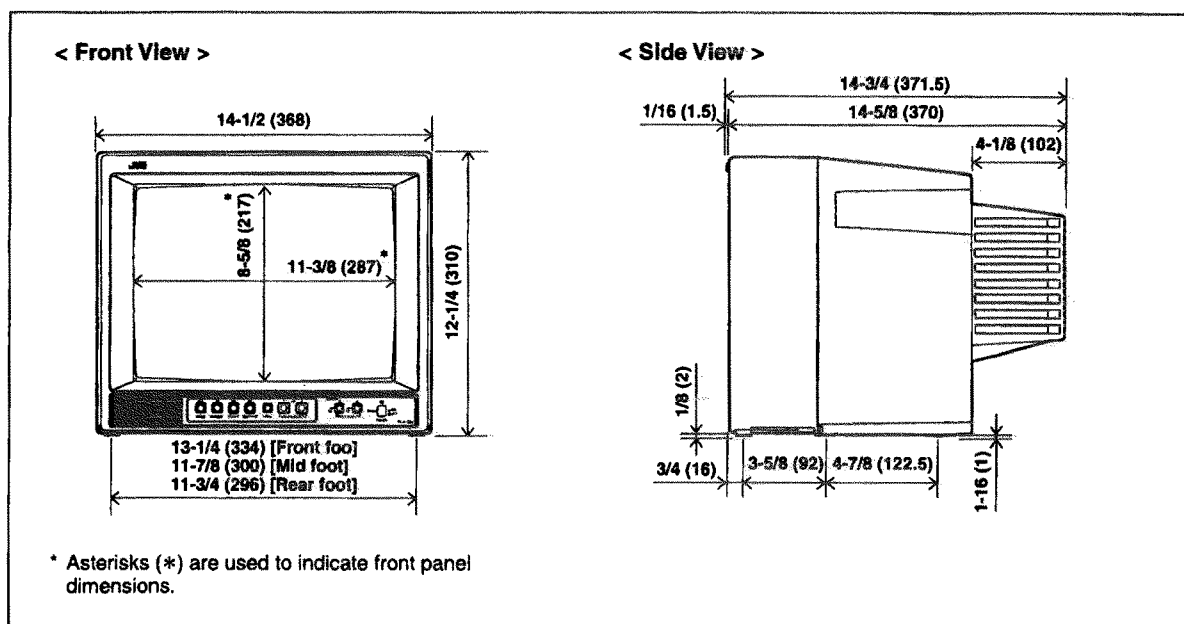
* Illustrations used in this manual are for explanatory purposes only. The appearance of the actual product may differ slightly.

* Dimensions and weight are approximate.

* E. & O. E. Design and specifications subject to change without notice.

■ Dimensions

Unit : Inch (mm)



(TM-A13SU shown)

■ Y/C (Mini DIN 4 pin) terminal specification



Pin No.	Signal
1	GND (Y)
2	GND (C)
3	Y
4	C

SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
The chassis and any sub-chassis contained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED(NEUTRAL) : (⌋) side GND and EARTH : (⊕) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

10. Isolation Check

(Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.

(... Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

This method of test requires a test equipment not generally found in the service trade.

(2) Leakage Current Check

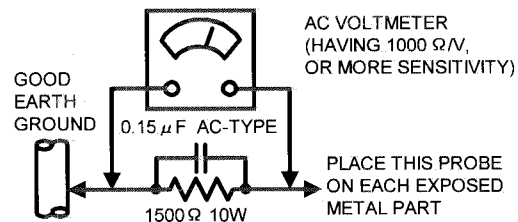
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

● Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



11. High voltage hold down circuit check.

After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.

See item "How to check the high voltage hold down circuit".

This mark shows a fast operating fuse, the letters indicated below show the rating.



MAIN DIFFERENCE PARTS LIST

△	PARTS No.			PARTS NAME	Description
	TM-A13SU	TM-A13SU-W	TM-A13UCV		
	FX-1106A-H2	←	FX-1107A-H2	MAIN PWB ASS'Y	
	CEBSS08P-01KJ2	←	X	SPEAKER	
△	LC10039-001C-H	LC10039-003A-H	LC10039-001C-H	FRONT CABINET	
	LC20056-003A	LC20056-006A	LC20056-004A	CONTROL SHEET	
	SBSF3010Z-H (×4)	←	SBSF3010Z-H (×2)	TAPPING SCREW	
△	LC10040-001D-H	LC10040-002A-H	LC10040-001D-H	REAR COVER	
	X	X	LC40252-001A-H	AUDIO COVER	
	X	X	LC40253-001A-H	Y/C COVER	
	CP11613-070-H	CP11613-087-H	CP11613-071-H	PACKING CASE	
△	LCT0234-001A-H	LCT0332-001A-H	LCT0234-001A-H	INST BOOK	

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

[CAUTION]

- * Even with the power switch off, some parts of the set are live. Be sure to disconnect the power cord from the AC outlet before disassembly and reassembly.

REMOVING THE REAR COVER

1. Remove the 8 screws marked (A) as shown in the figure.
2. Withdraw the rear cover toward you.

REMOVING THE PW BOARD

- Remove the rear cover.
- 1. Slightly raise the both sides of the PW board by hand and remove the claw under the terminal bracket from the front cabinet.
- 2. Withdraw the PW board backward.
(If necessary, take off the wire clamp, connectors etc.)

REMOVING THE TERMINAL BRACKET

- Remove the rear cover.
- 1. Remove the 4 screws marked (B) . (2 SCREWS : TM-A13UCV)
- 2. Withdraw the terminal bracket rearward.

REMOVING THE SPEAKER (EXCEPT TM-A13UCV)

- Remove the PW board.
- 1. Remove the claw securing the speaker under the front cabinet and pull out the speaker (Fig.1).

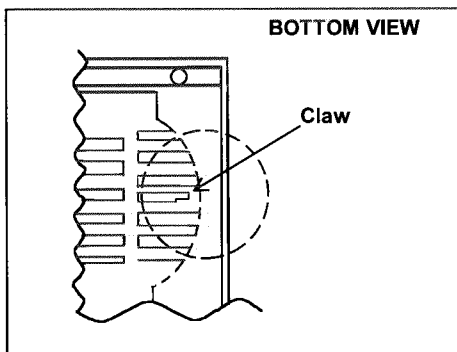


Fig. 1

CHECKING THE PW BOARD

To check the back side of the PW board.

- (1) Pull out the PW board.
- (2) Erect the chassis vertically so that you can easily check the back side of the PW board.

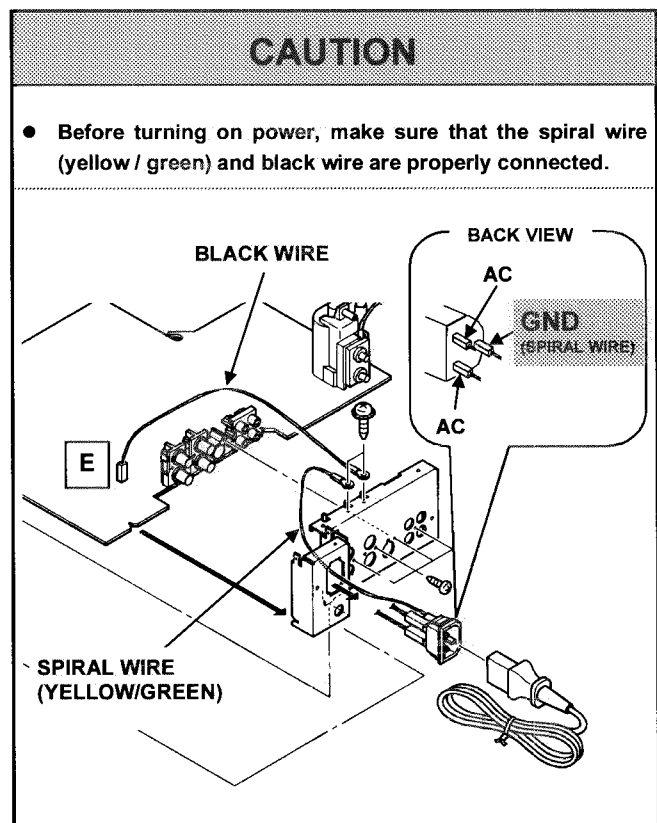
[NOTE]

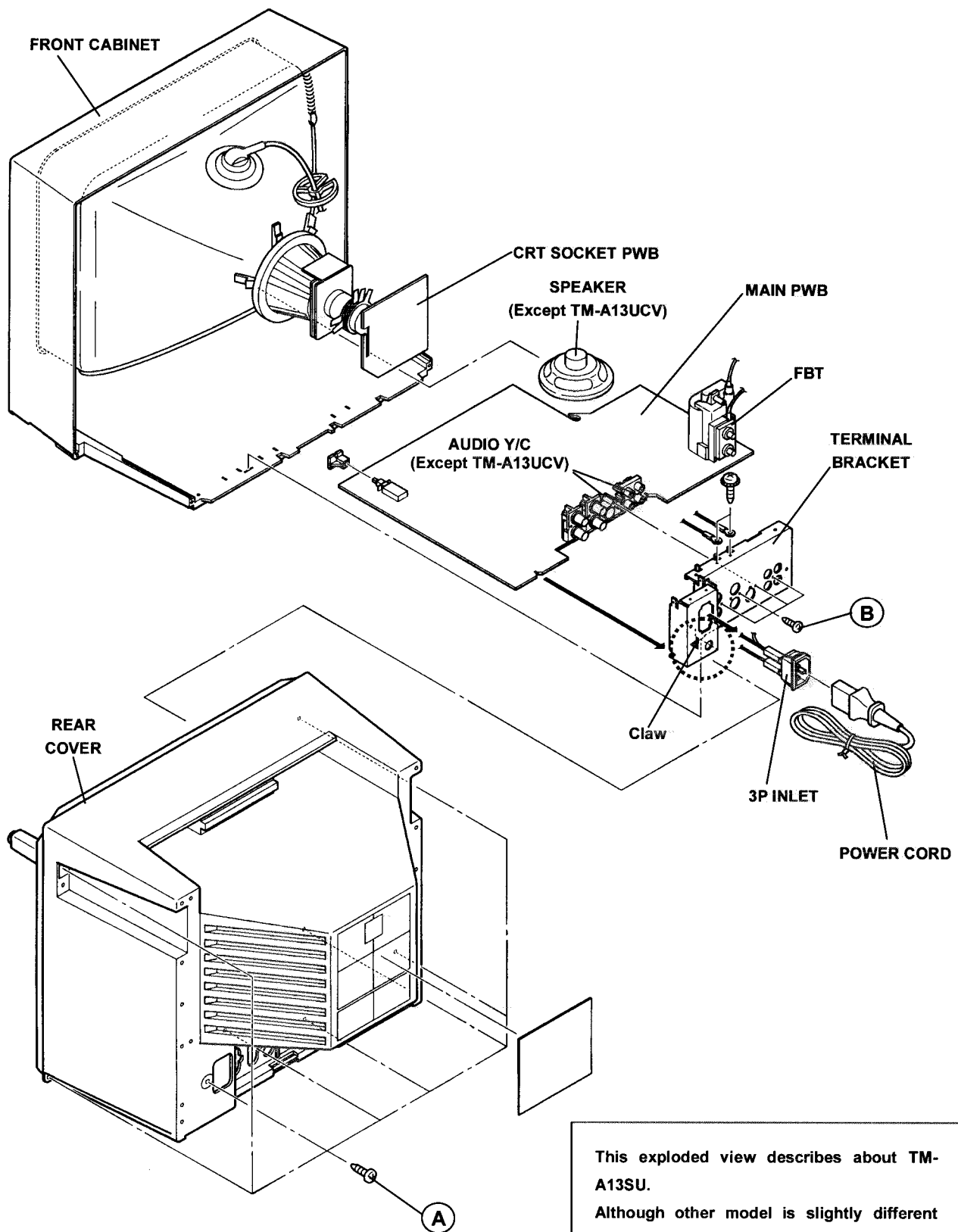
- * When erecting the PW board, be careful so that there will be no contacting with other PW board.

* Before turning on power, make sure that the CRT earth wire and other connectors are properly connected.

WIRE CLAMPING AND CABLE TYING

1. Be sure to clamp the wire.
2. Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.





This exploded view describes about TM-A13SU.

Although other model is slightly different from this figure, you can use the exploded view for disassembling the other model in the same step as for the TM-A13SU.

MEMORY IC REPLACEMENT NOTES

MEMORY IC

This model uses a memory IC(EEP-ROM ICs). In the memory IC are memorized data for correctly operating the video and deflection. The micro computer provides a function by which the initial setting values are entered into the memory IC. Therefore, when replacing the memory IC, a memory without initial setting values can be used. If the memory IC is replaced, the data must be entered into the new memory IC as described below.

PROCEDURE FOR REPLACING MEMORY IC

(1) Power off

Switch the power off and unplug the power cord from the wall outlet.

(2) Replace IC

(3) Enter the data into new memory IC

- 1)When the power is turned on, the DATA LOAD screen as shown in Fig.1 will be displayed.
- 2)Press the <CONTRAST> button on the front panel of the cabinet.
- 3)The screen as shown in Fig.2 will be displayed.
- 4)Press the [-Down] button on the front side of the cabinet. The data will be entered into the memory IC.

(4)CONTROL DATA Change

* After changing the MEMORY IC, change the control data.

- 1)Enter into the SERVICE MENU. (Refer to the BASIC OPERATION of THE SERVICE MENU.)
- 2)Select the CONTROL BLOCK and change the control data in the following table.

[Note] Don't change the control data in other items unless otherwise required.

CHANGING THE CONTROL DATA

Service Number	CONTROL DATA	
	INITIAL VALUES	SETTING VALUES
C13	000	001
C17	001	002
C18	001	002
C19	001	002
C20	001	002
C22	013	015
C38	000	001
C44	000	001
C01 (ONLY TM-A13UCV)	006	007

DATA LOAD MENU SCREEN

E²PROM DATA NG !!
DATA LOAD FROM ?
"MEMORY PACK"
then CODE <***>
"MICOM IC"
then <CONTRAST>

Fig.1

DATA LOAD SERVICE
FROM "MICOM IC"
Are you sure ?
"Yes" then <PHASE>

Fig.2

(5) Check and set SET-UP MENU

- 1) Press <MENU> and <PHASE> button simultaneously. The SET-UP MENU screen of Fig.3 will be displayed.
- 2) Check the values of SET-UP MENU by referring to the table 1 given below. If there is any discrepancy of the values, set the correct values with the button according to the display on the screen.

SET-UP SETTING VALUES

SETTING ITEMS		INITIAL SETTING VALUES
H.POSITION		00
WHITE BALANCE	CUTOFF(R/G/B)	00
	DRIVE(R/B)	00
CONTROL LOCK		OFF

Table 1

SET-UP MENU SCREEN

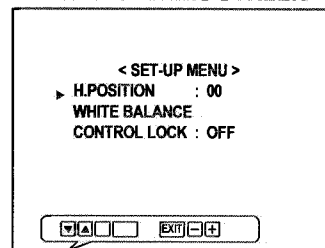


Fig.3

(6) Check and set MENU

- 1) Press <MENU> button. The MENU screen of Fig.4 will be displayed.
- 2) Check the values of MENU refer to the table 2. If there is any discrepancy of the values, set the correct values with the button according to the display on the screen.

MENU SETTING VALUES

SETTING ITEMS		INITIAL SETTING VALUES
SHARPNESS		00
COLOUR SYSTEM		AUTO

Table 2

MENU SCREEN

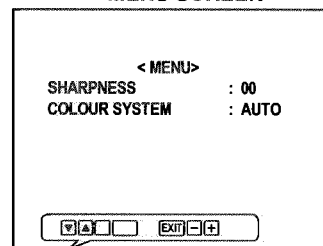


Fig.4

(7) Check and set FRONT CONTROL SETTING VALUES

- 1) Press the front panel button (CONTRAST, BRIGHT, CHROMA, PHASE). THE FRONT CONTROL SETTING screen Fig.5 will be displayed.
- 2) Check the values of FRONT CONTROL SETTING refer to Table 3. If there is any discrepancy of the values, Set the initial setting values with <-> or <+> button directly.

FRONT CONTROL SETTING VALUES

SETTING ITEMS		INITIAL SETTING VALUES
CONTRAST		00
BRIGHT		00
CHROMA		00
PHASE		00

Table 3

FRONT CONTROL SETTING SCREEN

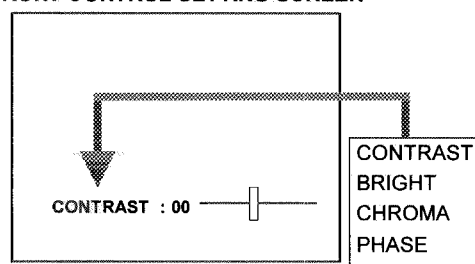


Fig.5

SERVICE MENU SETTING ITEMS

BLOCK	SERVICE NUMBER	CONTENTS	
1. SIGNAL BLOCK	S01	BRIGHT	
	S02	CONTRAST	
	S03	PAL	CHROMA
	S04	NTSC	CHROMA
	S05	SECAM	CHROMA
	S06	NTSC	PHASE
2. WHITE BALANCE BLOCK	W01	CUTOFF	R
	W02		G
	W03		B
	W04	DRIVE	R
	W05		B
3. DEFLECTION BLOCK	D01	50Hz	HORIZONTAL CENTER
	D02		VERTICAL SIZE
	D03		V-S. CORRECTION
	D04		VERTICAL CENTER(Not use)
	D05		VERTICAL LINEARITY
	DA1	60Hz	HORIZONTAL CENTER
	DA2		VERTICAL SIZE
	DA3		V-S. CORRECTION
	DA4		VERTICAL CENTER (Not use)
	DA5		VERTICAL LINEARITY
4. CONTROL BLOCK	C01	MODEL	
	C02	BRIGHT POINT	UPPER
	C03		LOWER
	C04	CONTRAST POINT	UPPER
	C05		LOWER
	C06	CHROMA POINT	UPPER
	C07		LOWER
	C08	PHASE POINT	UPPER
	C09		LOWER
	C10	OSD H POSITION	
	C11	OSD V POSITION 50Hz	
	C12	OSD V POSITION 60Hz	
	C13	Y DELAY NTSC VIDEO	
	C14	Y DELAY PAL VIDEO	
	C15	Y DELAY SECAM VIDEO	
	C16	Y DELAY B/W VIDEO	
	C17	Y DELAY NTSC S VIDEO	
	C18	Y DELAY PAL S VIDEO	
	C19	Y DELAY SECAM S VIDEO	
	C20	Y DELAY B/W S VIDEO	
	C21	BRIGHT SERVICE	
	C22	SHARPNESS CENTER	
	C23	VERTICAL GUARD	
	C24	HOUR METER	
	C25	AFC MODE	
	C26	BURST POSITION NTSC/PAL	
	C27	BURST POSITION SECAM	
	C28	COLOUR SYSTEM	
	C29	REMOCON	
	C30	S-FILED	

BLOCK	SERVICE NUMBER	CONTENTS
4. CONTROL BLOCK	C31	SCD. ATT
	C32	DEMP. F0
	C33	V. ID. SW
	C34	S. KILL
	C35	BELL. F0
	C36	ABL GAIN
	C37	ABL POINT
	C38	C-TRAP SW NTSC
	C39	C-TRAP SW PAL
	C40	C-TRAP Q NTSC
	C41	C-TRAP Q PAL
	C42	C-TRAP F0 NTSC
	C43	C-TRAP F0 PAL
	C44	C-TOF SW NTSC
	C45	C-TOF SW PAL
	C46	C-TOF Q NTSC
	C47	C-TOF Q PAL
	C48	C-TOF F0 NTSC
	C49	C-TOF F0 PAL
	C50	SHARPNESS F0 NTSC VIDEO
	C51	SHARPNESS F0 PAL VIDEO
	C52	SHARPNESS F0 SECAM VIDEO
	C53	SHARPNESS F0 S VIDEO

SERVICE ADJUSTMENTS

BEFORE STARTING SERVICE ADJUSTMENT

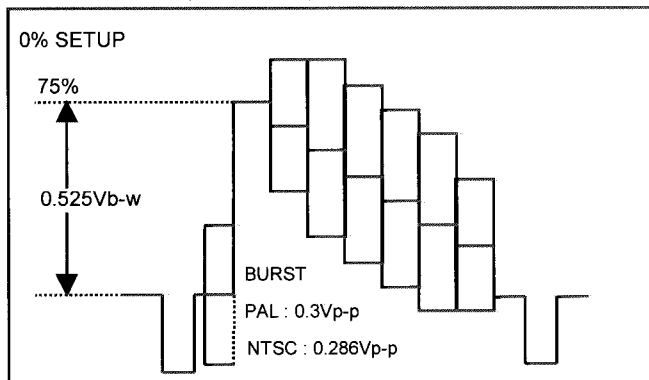
1. Supply power to the set and measuring instruments and allow to warm up for at least 30 minutes.
2. Confirm the proper AC power voltage is being supplied.
3. The setting is made on basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
4. Use care not to disturb controls and switches not mentioned in the adjustment items.
5. Refer to adjustment settings and set user operated controls (BRIGHT, CONTRAST, PHASE, CHROMA, etc.) to the indicated positions.

MEASUREING INSTRUMENTS AND FIXTURES

- DC voltmeter (digital voltmeter)
- Oscilloscope
- Signal generator (PAL/NTSC systems)
 - Colour bar and split color bar patterns
 - Crosshatch pattern
 - Cross pattern
 - Red raster pattern
 - Green raster pattern
 - Blue raster pattern
 - Philips pattern (including R-Y and B-Y)
 - TV resolution pattern
- The wave form of signals refer following figure.
- Colour analyzer
- High voltage meter

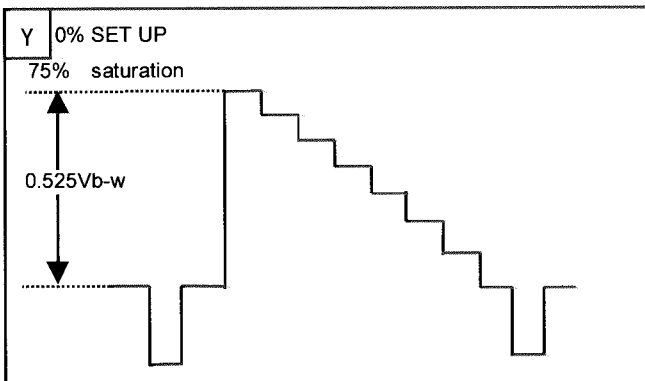
VIDEO SIGNAL

● COLOUR BAR (PAL / NTSC) SIGNAL

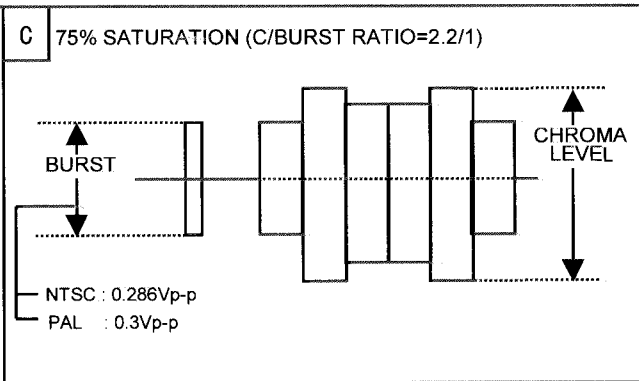


Y/C SEPARATE SIGNAL

● COLOUR BAR SIGNAL



● COLOUR BAR SIGNAL



ADJUSTMENT SETTINGS

1. Front controls

PHASE 00 (NTSC only)
CHROMA 00
BRIGHT 00
CONTRAST 00
VOLUME 20 [Except TM-A13UCV]

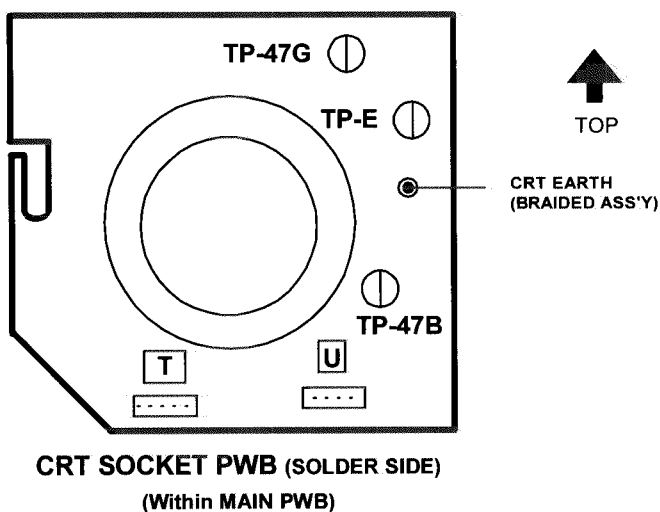
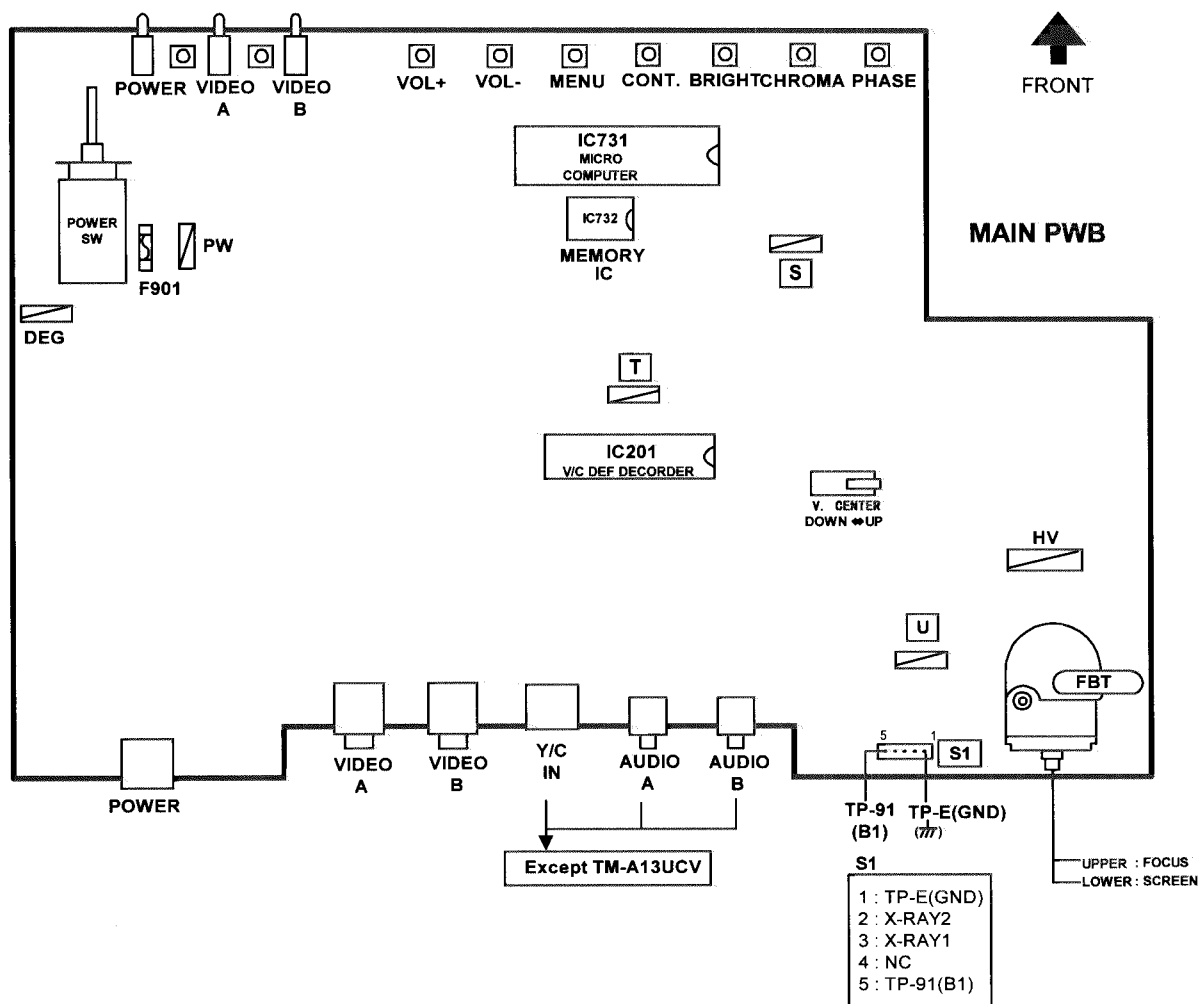
2. Front switches

INPUT SELECT VIDEO A

3. MENU screen

SHARPNESS 00
COLOUR SYSTEM AUTO

ADJUSTMENT LOCATIONS



BASIC OPERATION OF THE SERVICE MENU

1. SERVICE MENU ITEMS

With the SERVICE MENU, various settings can be made, and they are broadly classified in the following items of adjustments.

Don't change the values, if not to necessary.

SIGNAL BLOCK This mode adjusts the data of the various signal voltage controls.

WHITE BALANCE BLOCK This mode adjusts the data of the WHITE BALANCE adjustment.

DEFLECTION BLOCK This mode adjusts the data of the DEFLECTION circuit.

CONTROL BLOCK This mode adjusts the whole of the systems

2. BASIC OPERATION OF THE SERVICE MENU

(1) HOW TO ENTER THE SERVICE MAIN MENU

- ① Press **MENU** key and **CONTRAST** key simultaneously.
- ② The letter "S" appears at the upper left of the screen.(Fig.1)
- ③ While "S" is displayed, press **MENU** key and **PHASE** key simultaneously.
- ④ The screen display "PLEASE DON'T TOUCH".(Fig.2)
- ⑤ While "PLEASE DON'T TOUCH" is displayed, press + key or - key to display the SERVICE MAIN MENU as shown in Fig.3.

NOTE

If step ④ state continues for more than 5 seconds without a further operation, the display extinguishes and the mode is released.

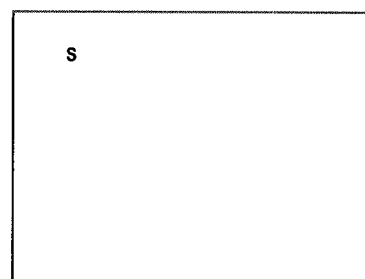


Fig.1

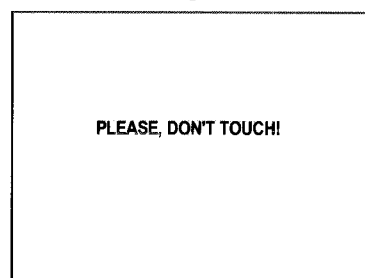


Fig.2

(2) SELECT OF SUB MENU SCREEN

- While the SERVICE MAIN MENU is displayed.
In accordance with the key control display at the lower side of the screen, operate the various items.

SIGNAL BLOCK Press the **PHASE** key
WHITE BALANCE BLOCK Press the **CHROMA** key
DEFLECTION BLOCK Press the **BRIGHT** key
CONTROL BLOCK Press the **CONTRAST** key

SERVICE MAIN MENU

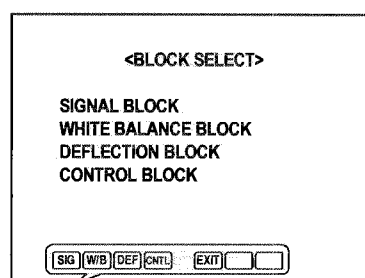


Fig.3

(3) SETTING VALUE CHANGES

- While the adjustment mode menu is displayed.(Fig.4)
- ① Press the +key or -key to change the setting value.
- ② Press the **PHASE** or **CHROMA** key to change the adjustment items.

(4) SERVICE MENU EXIT

- ① When settings are completed, press **MENU** key.
- ② The SERVICE MAIN MENU returns.
- ③ Again press **MENU** key.
- ④ The screen display extinguishes and the SERVICE MENU is exited.

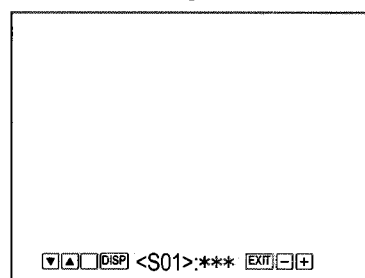
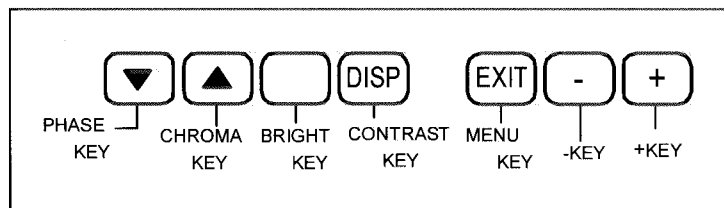


Fig.4
Value
Adjustment item

3. HOW TO OPERATE SERVICE MENU ITEMS

■ SIGNAL BLOCK

- ① Press the **PHASE** key from the <BLOCK SELECT> screen (SERVICE MAIN MENU).
- ② Then displays the SIGNAL BLOCK adjustment screen (Fig.5)
- ③ The select item is shown by the SERVICE Number at the lower of the screen.
- ④ Key control operation are displays as same as the screen lower. The key operations of this mode are following as shown below.



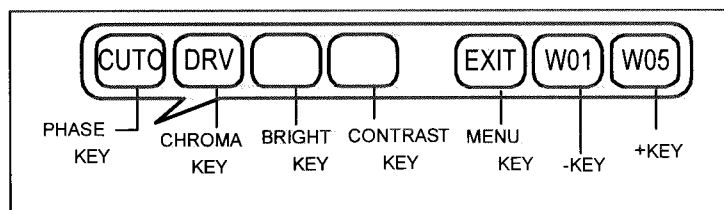
NOTE

CONTRAST key is the switch of the screen display. If necessary, you can shut off the display. Carefully, values of SERVICE MENU adjustment items are changed while shut off the screen display.

- ⑤ Press the **MENU** key, then exit from the SIGNAL BLOCK screen to return to the <BLOCK SELECT> screen.

■ WHITE BALANCE BLOCK

- ① Press the **CHROMA** key from the <BLOCK SELECT> screen (SERVICE MAIN MENU).
- ② Then screen displays the WHITE BALANCE BLOCK adjustment screen (Fig.6)



- ③ The select item is shown by the SERVICE Number at the lower of the screen.
- ④ Press the **MENU** key few times, then exit from the WHITE BALANCE BLOCK screen to return to the <BLOCK SELECT> screen.

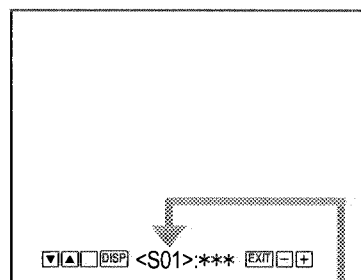


Fig.5

SERVICE Number

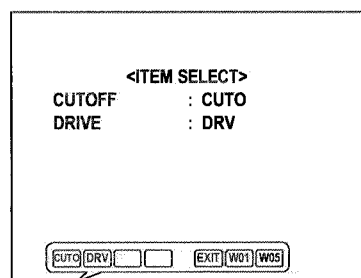


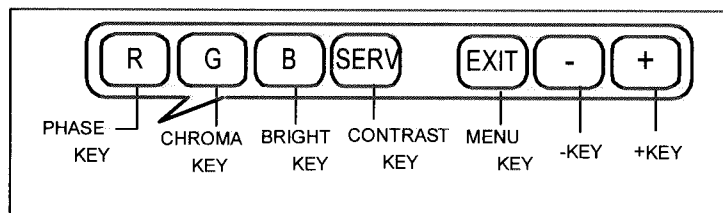
Fig.6

[WHITE BALANCE Adjustment : METHOD 1]

Accordance with the screen, select the WHITE BALANCE mode that following below.

• **CUTOFF adjustment mode (LOW LIGHT)**

Press the **PHASE** key from the <ITEM SELECT>, then enter the CUTOFF adjustment mode as shown in Fig.7 (LOW LIGHT adjustment mode). In this case, key control is changed as shown below.



Press key of the SERV displaying. Shown **ONE HORIZONTAL LINE** on or off.

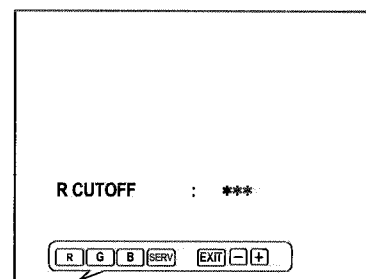


Fig.7

• **DRIVE adjustment mode (HIGH LIGHT)**

Press the **CHROMA** key from the <ITEM SELECT>, then enter the DRIVE adjustment mode as shown in Fig.8 (HIGH LIGHT adjustment mode). In this case, key control is changed as shown below.

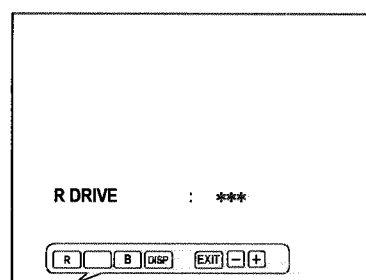
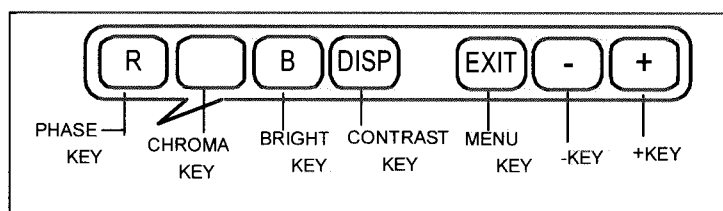


Fig.8

[WHITE BALANCE Adjustment : METHOD 2]

Accordance with the screen, select the WHITE BALANCE mode that following below.

Press the +key or -key from the <ITEM SELECT>, then enter the WHITE BALANCE full adjustment mode as shown in Fig.9 (this mode both LOW LIGHT and HIGH LIGHT are able to adjust). In this case, key control is changed as shown below. The operation of this mode is as same as SIGNAL BLOCK adjustment operation.

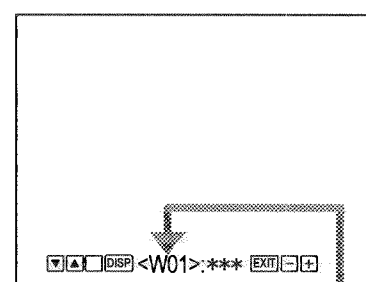
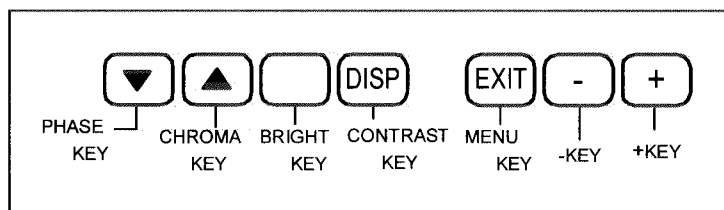


Fig.9

SERVICE Number

■ DEFLECTION BLOCK

- ① Press the **BRIGHT** key from the <BLOCK SELECT> screen (SERVICE MAIN MENU).
- ② Then screen displays the DEFLECTION BLOCK adjustment screen (Fig.10).
- ③ The select item is shown by the SERVICE Number at the lower of the screen.
- ④ The adjustment screen changes by case of the signal that use for adjustment (Vertical frequency).

SIGNAL	SCREEN DISPLAY
50Hz	<D0*>
60Hz	<DA*>

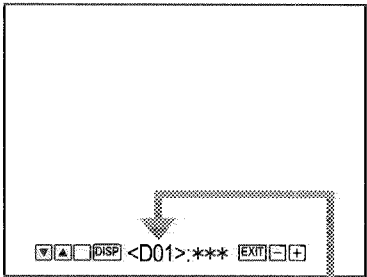
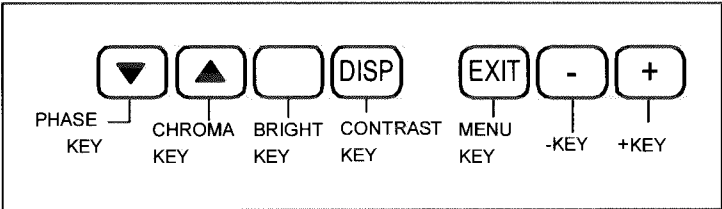


Fig.10

SERVICE Number

Key control operation are displays as same as the screen lower. The key operations of this mode are following as shown below.



NOTE

CONTRAST key is the switch of the screen display. If necessary, you can shut off the display. Carefully, values of SERVICE MENU adjustment items are changed while shut off the screen display.

■ CONTROL BLOCK (Don't change the values, if not to necessary).

- ① Press the **CONTRAST** key from the <BLOCK SELECT> screen (SERVICE MAIN MENU).
- ② Then screen displays the CONTROL BLOCK adjustment screen (Fig.11)
- ③ The select item is shown by the SERVICE Number at the lower of the screen.
- ④ Key control operation are displays as same as the screen lower. The key operations of this mode are following as shown below.

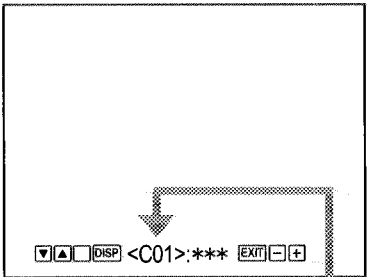
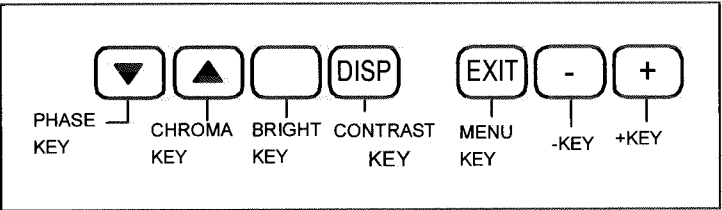


Fig.11

SERVICE Number

[SERVICE MAIN MENU]

<BLOCK SELECT>

SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
CONTROL BLOCK

[SIG] [WB] [DEF] [ENTL] [EXIT] [] []

[SUB MENU]

SIGNAL BLOCK

[V] [A] [] [DISP] <S01>:*** [EXIT] [] []

S01 BRIGHT
S02 CONTRAST
S03 PAL CHROMA
S04 NTSC CHROMA
S05 SECAM CHROMA
S06 NTSC PHASE

WHITE BALANCE BLOCK

<ITEM SELECT>

CUTOFF : CUTO
DRIVE : DRV

[CUTO] [DRV] [] [] [EXIT] [W01] [W05]

CUTOFF

R CUTOFF : ***

[R] [G] [B] [SERV] [EXIT] [] []

R CUTOFF
G CUTOFF
B CUTOFF

DRIVE

R DRIVE : ***

[R] [] [B] [DISP] [EXIT] [] []

R DRIVE
B DRIVE

SERVICE NUMBER

[V] [A] [] [DISP] <W01>:*** [EXIT] [] []

W01 } R
W02 } CUTOFF G
W03 } B
W04 } DRIVE R
W05 } B

DEFLECTION BLOCK

[V] [A] [] [DISP] <D01>:*** [EXIT] [] []

D01(DA1) H. CENT
D02(DA2) V. SIZE
D03(DA3) V. S. CORRECTION
D04(DA4) V. CENTER (Not use)
D05(DA5) V. LINEARITY

CONTROL BLOCK

[V] [A] [] [DISP] <C01>:*** [EXIT] [] []

C01 MODEL	C15 Y.D SECAM	C29 REMOCON	C43 C-TRAP F0 P
C02 BRIGHT	C16 Y.D B/W	C30 S-FILED	C44 C-TOF SW N
C03 CONTRAST	C17 Y.D NTSC S	C31 SCD.ATT	C45 C-TOF SW P
C04 CHROMA	C18 Y.D PAL S	C32 DEMP.F0	C46 C-TOF Q N
C05 PHASE	C19 Y.D SECAM S	C33 V.ID.SW	C47 C-TOF Q P
C06 SHARPNESS	C20 Y.D B/W S	C34 S.KILL	C48 C-TOF F0 N
C07 V.GUARD	C21 BRIGHT.SER.	C35 BELL.F0	C49 C-TOF F0 P
C08 HOUR	C22 SHARPNESS	C36 ABL.GAIN	C50 SHARP.F0 N
C09 AFC.MODE	C23 V.GUARD	C37 ABL.POINT	C51 SHARP.F0 P
C10 OSD POS	C24 B.P.N/P	C38 C-TRAP SW N	C52 SHARP.F0 SEC
C11 OSD V.50	C25 B.P.SECAM	C39 C-TRAP SW P	C53 SHARP.F0 S
C12 OSD V.60	C26 COL.SYS.	C40 C-TRAP Q N	
C13 Y.D NTSC		C41 C-TRAP Q P	
C14 Y.D PAL		C42 C-TRAP F0 N	

■ INITIAL SETTING VALUE OF THE SERVICE MENU ADJUSTMENT ITEMS

SIGNAL BLOCK

SERVICE Number	ITEMS		VARIABLE RANGE	INITIAL VALUE	DESCRIPTION
S01	BRIGHT		000 ~ 255	152	Aairable
S02	CONTRAST		000 ~ 255	066	
S03	CHROMA	PAL	000 ~ 255	133	
S04		NTSC	000 ~ 255	130	
S05		SECAM	000 ~ 255	130	
S06	PHASE		000 ~ 127	068	

WHITE BALANCE BLOCK

SERVICE Number	ITEMS		VARIABLE RANGE	INITIAL VALUE	DESCRIPTION
W01	CUTOFF	R	000 ~ 255	065	Aairable
W02		G	000 ~ 255	056	
W03		B	000 ~ 255	050	
W04	DRIVE	R	000 ~ 255	162	
W05		B	000 ~ 255	116	

DEFLECTION BLOCK

SERVICE Number	ITEMS		VARIABLE RANGE	INITIAL VALUE	DESCRIPTION
D01	50Hz	HORIZONTAL CENTER	000 ~ 031	010	Aairable
D02		VERTICAL	000 ~ 127	056	
D03		V-S. CORRECTION	000 ~ 063	031	
D04		VERTICAL CENTER	000 ~ 255	127	Don't touch
D05		VERTICAL LINEARITY	000 ~ 031	016	Aairable
DA1	60Hz	HORIZONTAL CENTER	-128 ~ 000 ~ +127	(+004)	Aairable
DA2		VERTICAL	-128 ~ 000 ~ +127	(-001)	
DA3		V-S. CORRECTION	-128 ~ 000 ~ +127	(000)	
DA4		VERTICAL CENTER	-128 ~ 000 ~ +127	(000)	Don't touch
DA5		VERTICAL LINEARITY	-128 ~ 000 ~ +127	(-004)	Aairable

CONTROL BLOCK

SERVICE Number	ITEM		VARIABLE RANGE	INITIAL VALUE	DESCRIPTION
C01	MODEL		000 ~ 011	* * * * *	TM-A13SU TM-A13SU-W 006 TM-A13UCV 007
C02	BRIGHT POINT	UPPER	000 ~ 255	063	
C03		LOWER	000 ~ 255	063	
C04	CONTRAST POINT	UPPER	000 ~ 255	063	
C05		LOWER	000 ~ 255	063	
C06	CHROMA POINT	UPPER	000 ~ 255	000	
C07		LOWER	000 ~ 255	030	
C08	PHASE POINT	UPPER	000 ~ 127	050	
C09		LOWER	000 ~ 127	050	
C10	OSD HORIZONTAL POSITION		000 ~ 015	012	Reserve (Don't touch)
C11	OSD VERTICAL POSITION 50Hz		000 ~ 007	005	
C12	OSD VERTICAL POSITION 60Hz		000 ~ 002	000	
C13	Y DELAY NTSC VIDEO		000 ~ 007	001	
C14	Y DELAY PAL VIDEO		000 ~ 007	001	
C15	Y DELAY SECAM VIDEO		000 ~ 007	004	
C16	Y DELAY B/W VIDEO		000 ~ 007	001	
C17	Y DELAY NTSC S VIDEO		000 ~ 007	002	
C18	Y DELAY PAL S VIDEO		000 ~ 007	002	
C19	Y DELAY SECAM S VIDEO		000 ~ 007	002	
C20	Y DELAY B/W S VIDEO		000 ~ 007	002	
C21	BRIGHT SERVICE		000 ~ 255	150	
C22	SHARPNESS CENTER		000 ~ 063	015	
C23	VERTICAL GUARD		000 ~ 001	001	
C24	HOUR METER		000 ~ 001	001	
C25	AFC MODE		000 ~ 003	000	
C26	BURST POSITION NTSC/PAL		000 ~ 001	000	
C27	BURST POSITION SECAM		000 ~ 001	000	
C28	COLOUR SYSTEM SECAM		000 ~ 001	000	
C29	REMOCON		000 ~ 001	000	
C30	S-FILED		000 ~ 001	001	
C31	SCD. ATT		000 ~ 001	000	
C32	DEMP. F0		000 ~ 001	000	
C33	V. ID. SW		000 ~ 001	000	
C34	S. KILL		000 ~ 001	000	
C35	BELL. F0		000 ~ 001	000	
C36	ABL GAIN		000 ~ 007	004	
C37	ABL POINT		000 ~ 007	006	
C38	C-TRAP SW NTSC		000 ~ 001	001	
C39	C-TRAP SW PAL		000 ~ 001	000	
C40	C-TRAP Q NTSC		000 ~ 003	001	

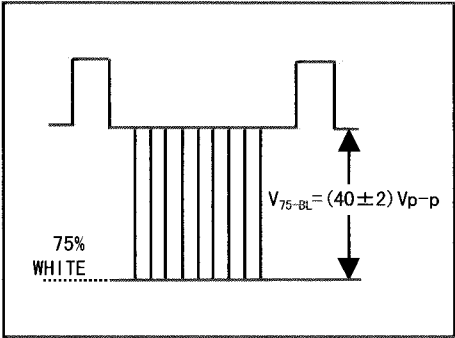
SERVICE Number	ITEM	VARIABLE RANGE	INITIAL VALUE	DESCRIPTION
C41	C-TRAP Q PAL	000 ~ 003	001	Reserve (Don't touch)
C42	C-TRAP F0 NTSC	000 ~ 003	002	
C43	C-TRAP F0 PAL	000 ~ 003	002	
C44	C-TOF NTSC	000 ~ 001	001	
C45	C-TOF PAL	000 ~ 001	000	
C46	C-TOF Q NTSC	000 ~ 003	000	
C47	C-TOF Q PAL	000 ~ 003	000	
C48	C-TOF F0 NTSC	000 ~ 003	000	
C49	C-TOF F0 PAL	000 ~ 003	000	
C50	SHARPNESS F0 NTSC VIDEO	000 ~ 003	000	
C51	SHARPNESS F0 PAL VIDEO	000 ~ 003	000	
C52	SHARPNESS F0 SECAM VIDEO	000 ~ 003	000	
C53	SHARPNESS F0 S VIDEO	000 ~ 003	000	

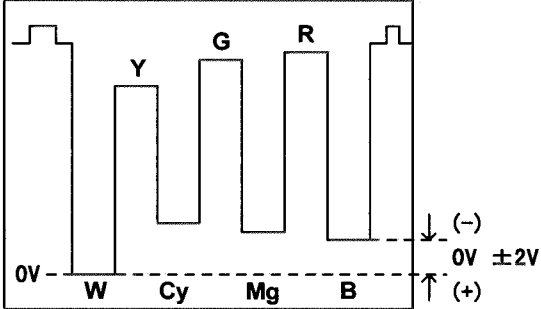
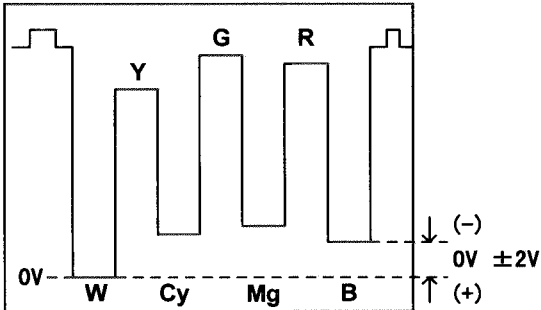
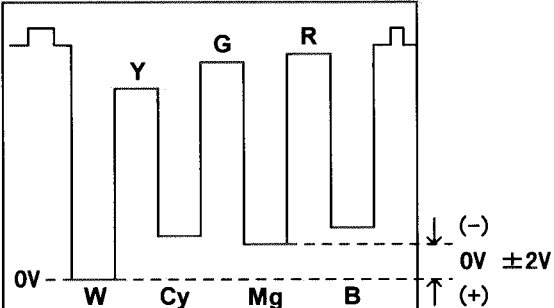
■ ADJUSTMENT

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Check of B1 power supply	Voltmeter Variable transformer	TP-91(B1): S1 ⑤ pin TP-E(↓): S1 ① pin [MAIN PWB] SCREEN VR [In FBT]		1. Set power supply voltage to 120V. 2. Select WHITE BALANCE BLOCK from the SERVICE MAIN MENU. 3. Select CUTOFF adjustment mode (LOW LIGHT mode). 4. Press "SERV" switch as CONTRAST key, to display the horizontal line. 5. Adjust the SCREEN VR to disappear the horizontal line. 6. Check the B1 voltage to 114.0V $\pm$ 2V. 7. Readjust the SCREEN VR to appear the horizontal line faintly, and cancel the horizontal line to press the "SERV" switch.
High voltage check	High voltage meter Signal generator (All-black signal)	CRT Anode SCREEN VR [In FBT]		1. Set power supply voltage to 120V. 2. Select WHITE BALANCE BLOCK from the SERVICE MAIN MENU. 3. Select CUTOFF adjustment mode (LOW LIGHT mode). 4. Press "SERV" switch as CONTRAST key, to display the horizontal line. 5. Adjust the SCREEN VR to disappear the horizontal line. 6. Connect the high voltage meter to the CRT anode and check for 21.6~23.6kV. 7. Readjust the SCREEN VR to appear the horizontal line faintly, and cancel the horizontal line to press the "SERV" switch.
Focus adjustment	Signal generator (Cross-hatch pattern)		FOCUS VR [In FBT]	1. Adjust the Focus VR for optimum focus where moire is not apparent. 2. Darken the picture and adjust the focus by tuning counter-clockwise from the position where focus is poor. 3. Alternately repeat the above steps to obtain the optimum position. • Focus can be adjusted easily by displaying the menu.

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure														
White balance (Low Light) adjustment	Signal generator (Resolution pattern, Color bar Pattern)		SCREEN VR [In FBT] W01 (R CUTOFF) W02 (G CUTOFF) W03 (B CUTOFF) [SERVICE MENU]	1. Supply the resolution pattern. 2. Select the WHITE BALANCE BLOCK from the SERVICE MAIN MENU. 3. Select the CUTOFF mode. 4. Confirm the values of the R.G.B CUTOFF are the initial setting value. 5. Press "SERV" switch as CONTRAST key, to display the horizontal line. Carefully adjust the SCREEN VR to horizontal line appears faintly, not to shine it much. 6. Gradually turn the SCREEN VR clockwise to bring one of the red, green and blue colors faintly visible. 7. Then select the CUTOFF switch (R, G or B) that color except for appears first, and adjusting 2 colors CUTOFF values by pressing the +key, and make horizontal line visible white. 8. Readjust the SCREEN VR to appear the horizontal line faintly, and cancel the horizontal line to press the "SERV" switch.														
White balance (Hight Light) adjustment	Signal generator (Resolution pattern) Color Analyzer or Color temperature meter		W04 (R DRIVE) W05 (B DRIVE) [SERVICE MENU]	1. Supply the resolution pattern. 2. Select the WHITE BALANCE BLOCK from the SERVICE MAIN MENU. 3. Select the DRIVE mode. 4. Apply the sensor of the Color temperature meter to the CRT surface, part of the 100% white, adjust the R drive or B drive to setting color temperature for below table. 5. Exit the SERVICE MENU by pressing the MENU key. 6. Check the white balance tracking is optimum when CONTRAST and BRIGHT are up and down. <table><tr><th>MODEL</th><th>Color temperature</th><th></th></tr><tr><td>TM-A13SU</td><td rowspan="2">6500k</td><td>X=0.313</td></tr><tr><td>TM-A13SU-W</td><td>Y=0.329</td></tr><tr><td>TM-A13UCV</td><td>9300k</td><td>X=0.283</td></tr><tr><td></td><td></td><td>Y=0.297</td></tr></table>	MODEL	Color temperature		TM-A13SU	6500k	X=0.313	TM-A13SU-W	Y=0.329	TM-A13UCV	9300k	X=0.283			Y=0.297
MODEL	Color temperature																	
TM-A13SU	6500k	X=0.313																
TM-A13SU-W		Y=0.329																
TM-A13UCV	9300k	X=0.283																
		Y=0.297																

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Bright adjustment	Signal generator (Sprit colour bar)		S01 (BRIGHT) [SERVICE MENU]	1. Supply a sprit colour bar signal. 2. Select the SIGNAL BLOCK from the SERVICE MAIN MENU. 3. Select the <S01> item. 4. Adjust <S01> to where the sprit colour bar 0% black component faintly brightness. 5. Check it to on and off the screen display by turning the "DISP" switch.
Contrast adjustment	Signal generator (Cross-hatch) Oscillo-scope	TP-47G TP-E() [CRT SOCKET PWB]	S02 (CONTRAST) [SERVICE MENU]	1. Supply a cross-hatch signal. (level 75%) 2. Connect the oscillo-scope probe to TP-47G and TP-E(). 3. Select the SIGNAL BLOCK from SERVICE MAIN MENU. 4. Select the <S02> item. 5. Adjust <S02> to set the waveform level to 40 ± 2 Vp-p as shown in figure.



Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
PAL CHROMA adjustment	Signal generator (Colour bar) Oscillo-scope	TP-47B TP-E(↗) [CRT SOCKET PWB]	S03 (PAL CHROMA) [SERVICE MENU]	1. Supply a PAL colour bar signal. 2. Connect the oscillo-scope probe to TP-47B and TP-E(↗). 3. Select the SIGNAL BLOCK from SERVICE MAIN MENU. 4. Select the <S03> item. 5. Adjust the <S03> to take the level difference in waveform is $0V \pm 2V$ as shown in figure.
				
NTSC CHROMA adjustment	Signal generator (Colour bar) Oscillo-scope	TP-47B TP-E(↗) [CRT SOCKET PWB]	S04 (NTSC CHROMA) [SERVICE MENU]	1. Supply a NTSC 3.58 colour bar signal. 2. Connect the oscillo-scope probe to TP-47B and TP-E(↗). 3. Select the SIGNAL BLOCK from SERVICE MAIN MENU. 4. Select the <S04> item. 5. Adjust the <S04> to take the level difference in waveform is $0V \pm 2V$ as shown in figure.
				
NTSC PHASE adjustment	Signal generator (Colour bar) Oscillo-scope	TP-47B TP-E(↗) [CRT SOCKET PWB]	S06 (NTSC PHASE) [SERVICE MENU]	1. Supply a NTSC 3.58 colour bar signal. 2. Connect the oscillo-scope probe to TP-47B and TP-E(↗). 3. Select the SIGNAL BLOCK from SERVICE MAIN MENU. 4. Select the <S06> item. 5. Adjust the <S06> to take the level difference in waveform is $0V \pm 2V$ as shown in figure.
				

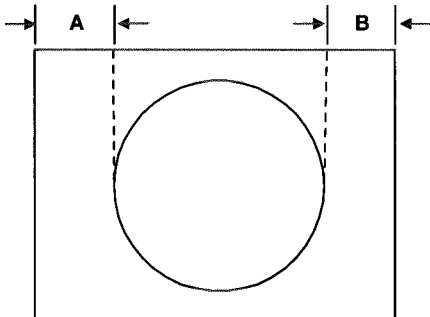
DEFLECTION CIRCUIT ADJUSTMENT

- There are 2 modes of DEFLECTION ADJUSTMENT — ① 50Hz and ② 60Hz — depending upon the kind of input signals (VERTICAL FREQUENCY 50Hz/60Hz).

- * When adjusted in the ① 50Hz mode, the ② 60Hz mode will be linked to the mode ① and will be automatically adjusted for the same value.
- * When adjusted in the ② 60Hz mode, only this mode will be adjusted singly.

NOTE

Adjustments for VERTICAL FREQUENCY shall always be carried out in regular order : ① 50Hz → 60Hz.

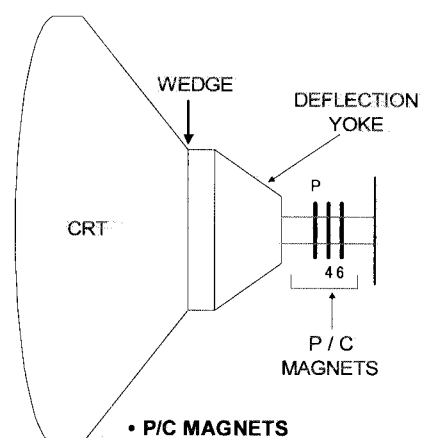
Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
H.CENTER adjustment	Signal generator (Circle pattern)		D01 (H.CENTER) [SERVICE MENU]	1. Supply a PAL (50Hz) circle pattern signal. 2. Select DEFLECTION BLOCK from SERVICE MAIN MENU. 3. Select <D01> item. 4. Adjust <D01> to align the picture center with the CRT center. (A=B)
				

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
V.SIZE adjustment	Signal generator (Cross-hatch pattern)		D02 (V.SIZE) [SERVICE MENU] V.CENTER SW [ON MAIN PWB]	5. Set the vertical center to go best position by selecting the V.CENTER SW. 6. Select <D02> item. 7. Adjust <D02> to set vertical size to 92%
V. S-CR V. LIN. adjustment	Signal generator (Cross-hatch pattern)		D03 V. S-CR (V-S correction) D05 V. LIN. (V-LINEARITY)	8. Select <D03> and <D05> item. 9. Adjustment <D03> and <D05> to distance of each horizontal lines are equal. 10. If necessary, repeat above (5)~(9).
				Make sure that the adjustments is properly done on the screen of 60Hz. If screen of the deflection adjustment is not optimum in 60Hz mode, adjust the deflection setting.

PURITY, CONVERGENCE

PURITY ADJUSTMENT

1. Demagnetize CRT with the demagnetizer.
2. Loosen the retainer screw of the deflection yoke.
3. Remove the wedges.
4. Input a green raster signal from the signal generator, and turn the screen to green raster.
5. Move the deflection yoke backward.
6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig.2)
7. Adjust the gap between two lugs so that the GREEN RASTER will come into the center of the screen. (Fig.3)
8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
9. Insert the wedge to the top side of the deflection yoke so that it will not move.
10. Input a crosshatch signal.
11. Verify that the screen is horizontal.
12. Input red and blue raster signals, and make sure that purity is properly adjusted.



• P/C MAGNETS

P : PURITY MAGNET
4 : 4 POLES (convergence magnets)
6 : 6 POLES (convergence magnets)

Fig.1

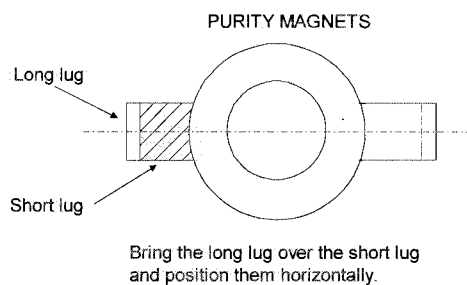


Fig.2

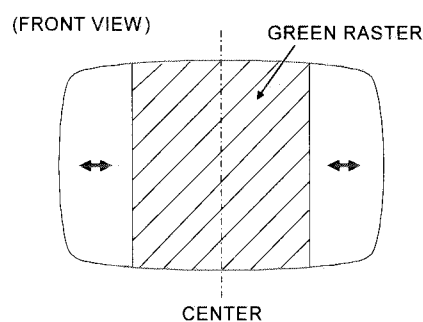


Fig.3

STATIC CONVERGENCE ADJUSTMENT

1. Input a crosshatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig.1) and turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the center of the screen and turn them to white.
4. Repeat 2 and 3 above, and make best convergence.

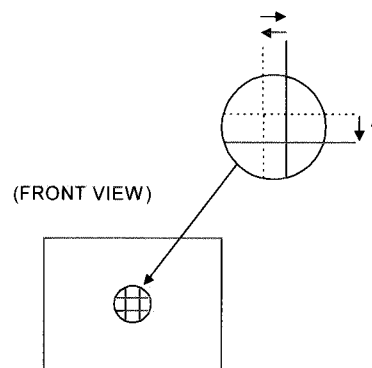


Fig.1

DYNAMIC CONVERGENCE ADJUSTMENT

1. Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
3. Repeat 1 and 2 above, and make best convergence.

(FRONT VIEW)

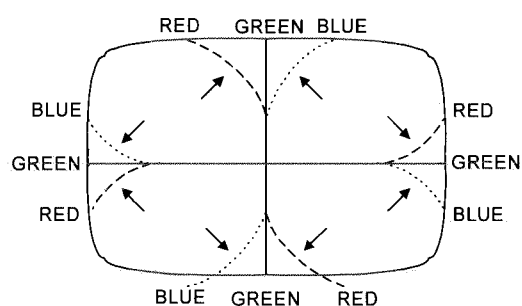


Fig.2

(FRONT VIEW)

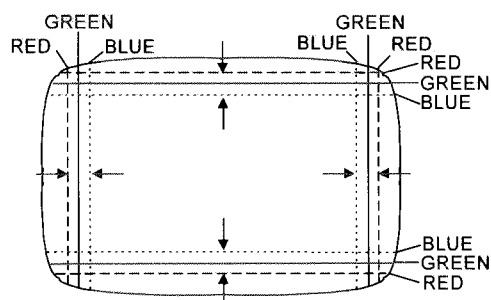


Fig.3

- After adjustment, fix the wedge at the original position.
Fasten the retainer screw of the deflection yoke.
Fix the 6 magnets with glue.

SELF DIAGNOSIS FUNCTION

1. OUTLINE

This model includes a SELF DIAGNOSIS FUNCTION that checks the circuit operating status and in event of malfunction, displays and stores the data in a memory. The data are stored in an I²C memory.

Fault detection starts with the I²C bus and is performed according to the input states of the control lines connected to the MAIN CPU.

2. USAGE

SELF DIAGNOSIS FUNCTION mode entry

- (1) While press the MENU key and CHROMA key simultaneously, and push the MAIN POWER switch on.
- (2) Then displays the SELF DIAGNOSIS FUNCTION screen. The screen display as shown Fig.1 and the SELF DIAGNOSIS FUNCTION mode is entered. If in event a malfunction at RASTER not display, at this time POWER LED or POWER & VIDEO A LED flashes.

PROTECTOR		
B1	:	O
X-RAY	:	O
P-CHK	:	O
V.NECK	:	O
BUS		
MEMORY	:	O
TV-PRO	:	O

Fig.1

DISPLAY	CAUSE	LED FLASHING CYCLE	INDICATED LED
B1	OVER CURRENT PROTECTOR (B1)	1.0 sec on / 1.0 sec off cycles	POWER
X-RAY	X-RAY PROTECTOR	0.1 sec on / 0.1 sec off cycles	POWER
P-CHK	OVER CURRENT PROTECTOR (LOW B)	0.5 sec on / 0.5 sec off cycles	POWER
V.NECK	CRT-NECK PROTECTOR	1.0 sec on / 1.0 sec off cycles	POWER & VIDEO A

SELF DIAGNOSIS FUNCTION mode release

Turn the power switch to off or disconnect the power cord from AC outlet.
In this way, not to clear the error counts.

Reset the error count

While entered in this mode, press the MENU key and "—" (DOWN) key simultaneously. Then clear the error count of the each item.

Fault history

The fault history counts up to a maximum of 9 times for each item. If the number of times exceeds 9, the display remains at 9. The fault history remains stored in the memory until deleted.

CONTENTS

CHECK ITEM	DISPLAY	DETECTION CONTENTS
POWER DEF CIRCUIT	B1	Over current protector operation and over voltage protector operation.
	X-RAY	
	P-CHK	
	V. NECK	V. OUT is abnormal
MEMORY IC AND DATA	MEMORY	Normal memory IC read / write operation
SINGLE CHIP TV PROCESSOR	TV-PRO	Normal IC101 (IF/DET/V/C/DEF) operation

HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. HIGH VOLTAGE HOLD DOWN CIRCUIT

After repairing the high voltage hold down circuit shown in schematic diagram.
This circuit shall be checked to operate correctly.

2. CHECKING OF THE HIGH VOLTAGE HOLD DOWN CIRCUIT

[CHECKING PROCEDURE [A]]

- (1) Turn the POWER SW ON.
- (2) As shown in Fig.1, set the resistor (between [S1] connector [2] & [3]).
- (3) Make sure that the screen picture disappears.
- (4) Temporarily unplug the power cord.
- (5) Remove the resistor (between [S1] connector [2] & [3]).
- (6) Again plug the power cord, make sure that the normal picture is displayed on the screen.

[CHECKING PROCEDURE [B]]

- (1) Turn the POWER SW ON.
- (2) As shown in Fig.1, supply DC voltage (55.2V) to [S1] connector (between X-RAY1 and GND).
- (3) Make sure that the screen picture disappears.
- (4) Temporarily unplug the power cord.
- (5) Remove the DC power supply.
- (6) Again plug the power cord, make sure that the normal picture is displayed on the screen.

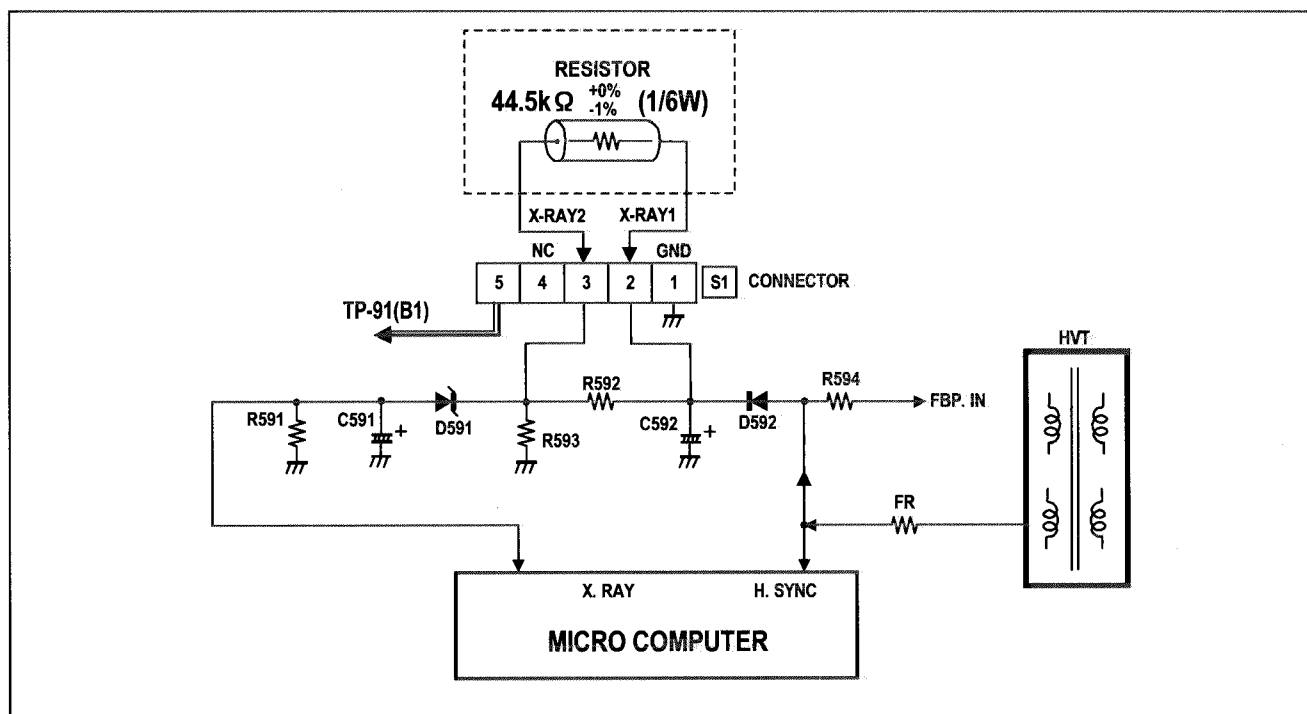


Fig. 1

TM-A13SU/TM-A13SU-W/TM-A13UCV STANDARD CIRCUIT DIAGRAMS

NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the Δ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2. SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- (1) Input signal : Color bar signal
 - (2) Setting positions of each knob/button and variable resistor : Original setting position when shipped
 - (3) Internal resistance of tester : DC 20k Ω /V
 - (4) Oscilloscope sweeping time : H $\Rightarrow$ 20 μ S/div
: V $\Rightarrow$ 5mS/div
: Others $\Rightarrow$ Sweeping time is specified
 - (5) Voltage values : All DC voltage values
- * Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3. INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board : R1209 $\rightarrow$ R209

4. INDICATIONS ON THE CIRCUIT DIAGRAM

(1) Resistors

● Resistance value

- No unit : [Ω]
- K : [K Ω]
- M : [M Ω]

● Rated allowable power

- No indication : 1/4[W]
- Others : As specified

● Type

- No indication : Carbon resistor
- OMR : Oxide metal film resistor
- MFR : Metal film resistor
- MPR : Metal plate resistor
- UNFR : Uninflamable resistor
- FR : Fusible resistor

*Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2) Capacitors

● Capacitance value

- 1 or higher : [pF]
- less than 1 : [μ F]

● Withstand voltage

- No indication : DC50[V]
- AC indicated : AC withstand voltage [V]
- Others : DC withstand voltage [V]

*Electrolytic Capacitors

47/50[Example]:Capacitance value [μ F]/withstand voltage[V]

● Type

- No indication : Ceramic capacitor
- MY : Mylar capacitor
- MM : Metalized mylar capacitor
- PP : Polypropylene capacitor
- MPP : Metalized polypropylene capacitor
- MF : Metalized film capacitor
- TF : Thin film capacitor
- BP : Bipolar electrolytic capacitor
- TAN : Tantalum capacitor

(3) Coils

- No unit : [μ H]
- Others : As specified

(4) Power Supply

- B1
- B2(12V)
- 9V
- 5V

*Respective voltage values are indicated

(5) Test point

-  : Test point
-  : Only test point display

(6) Connecting method

-  : Connector
-  : Wrapping or soldering
-  : Receptacle

(7) Ground symbol

-  : LIVE side ground
-  : ISOLATED(NEUTRAL) side ground
-  : EARTH ground
-  : DIGITAL ground

5. NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : ($\perp$) side GND and the ISOLATED(NEUTRAL) : ($\downarrow$) side GND. Therefore, care must be taken for the following points.

- (1) Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2) Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

◇ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

CONTENTS

[TM-A13SU / TM-A13SU-W]

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MAIN PWB CIRCUIT DIAGRAM (Micro computer & Front control circuit) 2-5

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MAIN PWB CIRCUIT DIAGRAM (Power & Deflection circuit) 2-9

[TM-A13UCV]

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CIRCUIT DIAGRAMS

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MAIN PWB CIRCUIT DIAGRAM (Micro computer & Front control circuit) 2-13

MAIN PWB CIRCUIT DIAGRAM (Video processor & CRT circuit) 2-15

MAIN PWB CIRCUIT DIAGRAM (Power & Deflection circuit) 2-17

COMMON

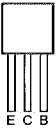
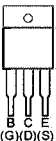
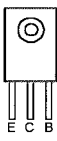
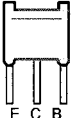
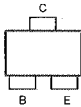
PATTERN DIAGRAMS

MAIN PWB PATTERN 2-19

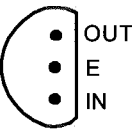
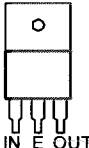
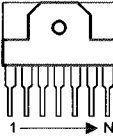
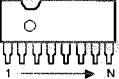
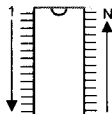
CRT SOCKET PWB PATTERN (Within Main PWB) 2-21

SEMICONDUCTOR SHAPES

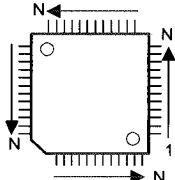
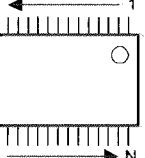
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

IC

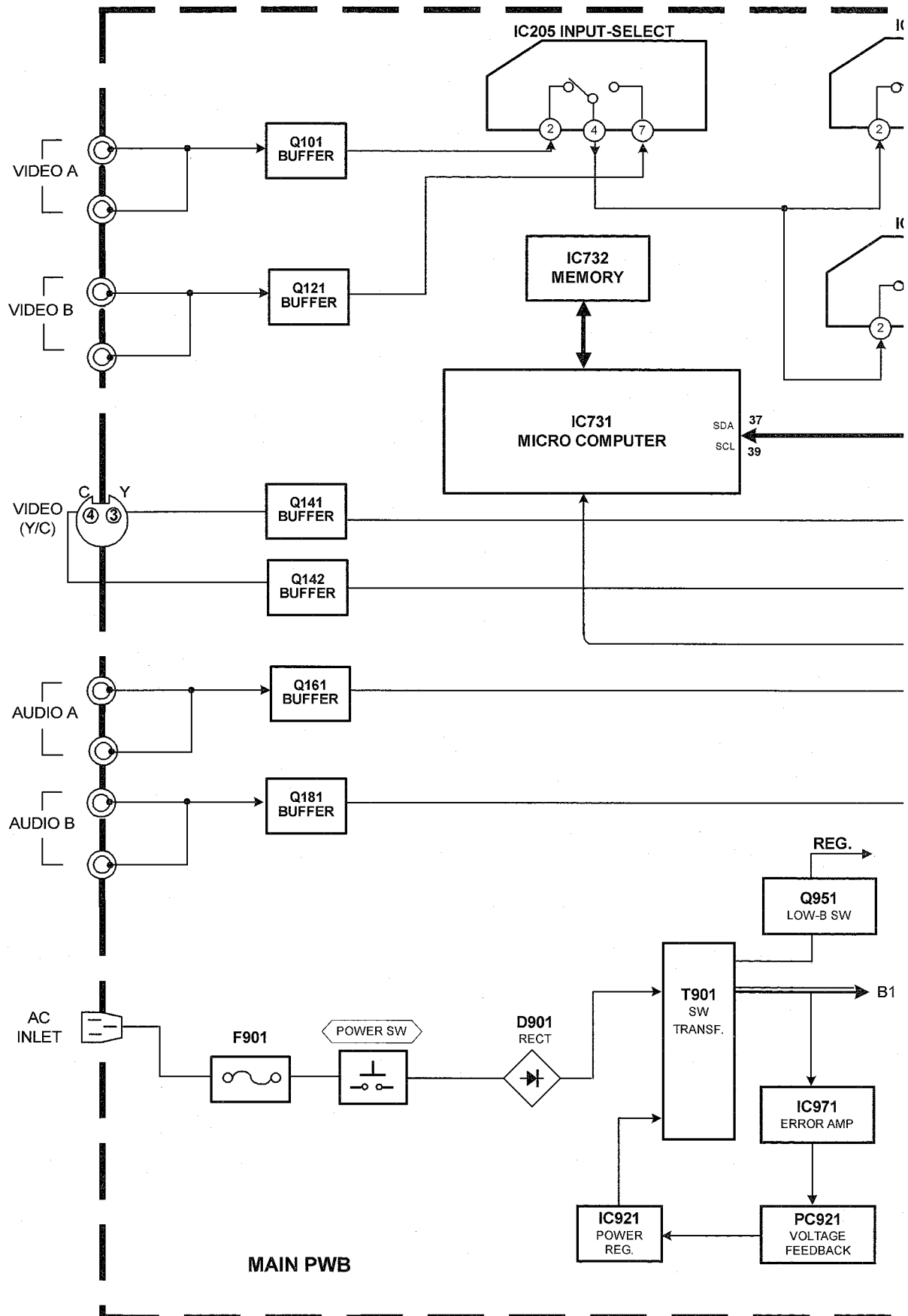
BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

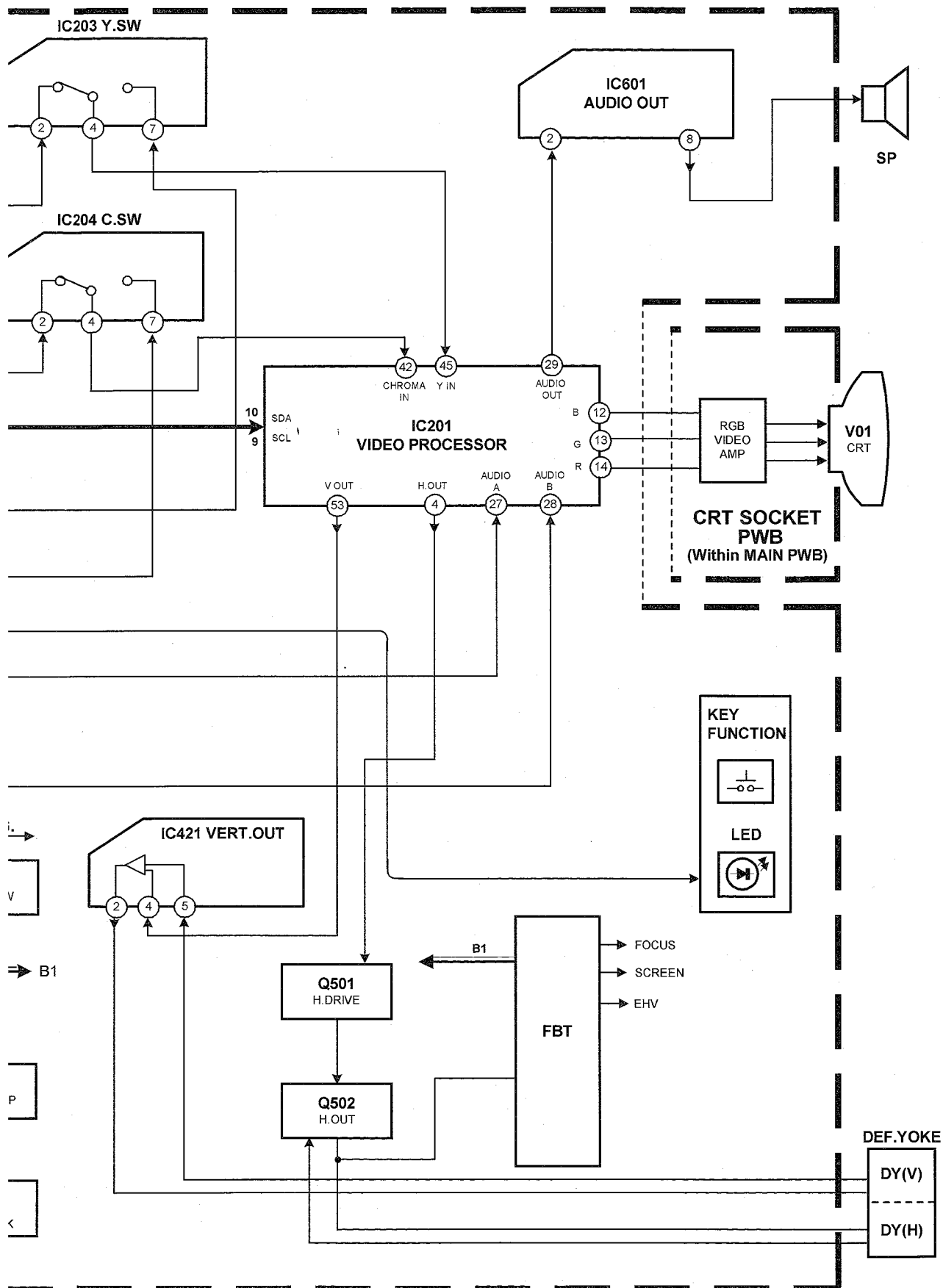
CHIP IC

TOP VIEW		
		

BLOCK DIAGRAM

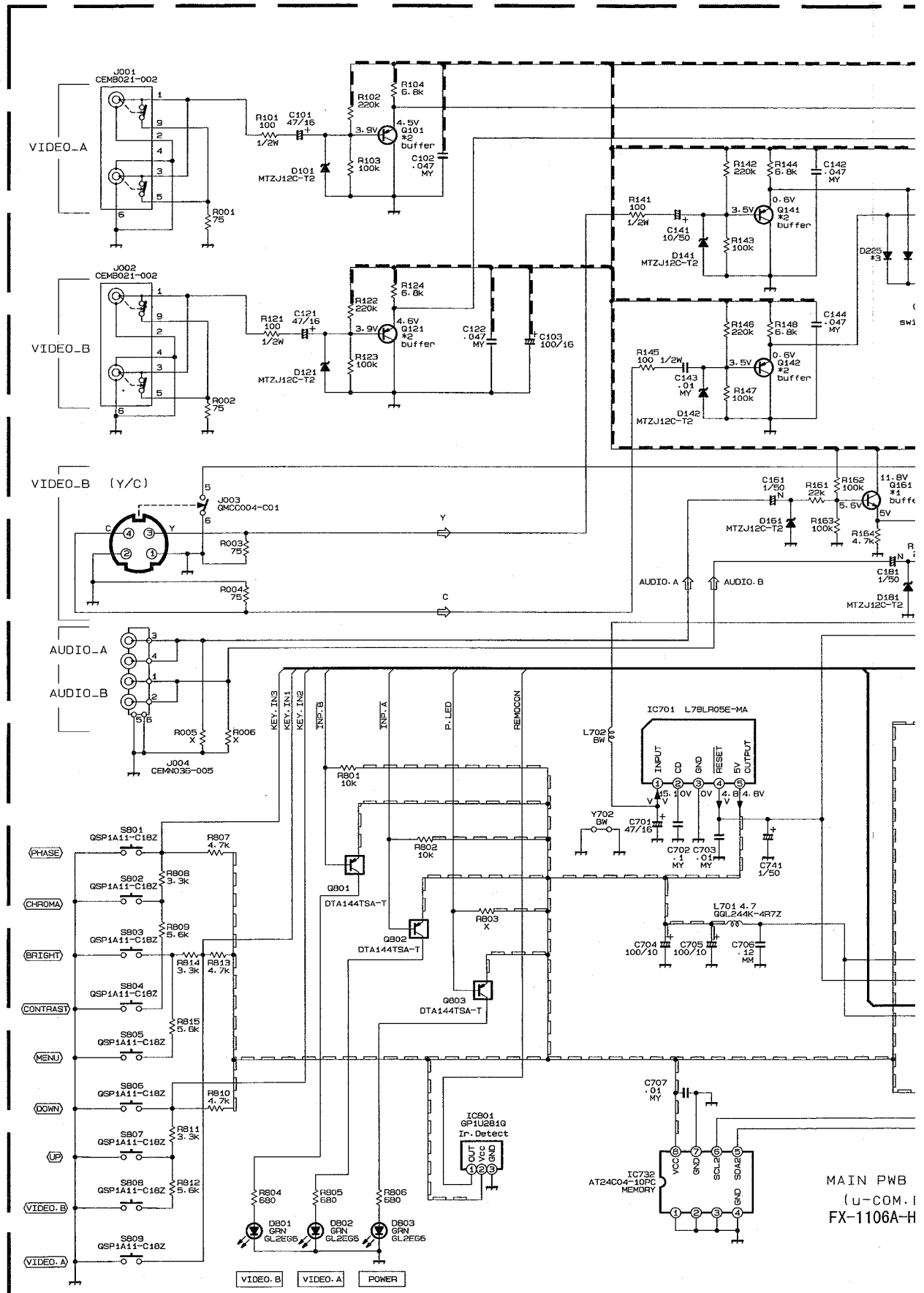
[TM-A13SU / TM-A13SU-W]





[TM-A13SU / TM-A13SU-W]

MAIN PWB CIRCUIT DIAGRAM [Micro computer & Front control]





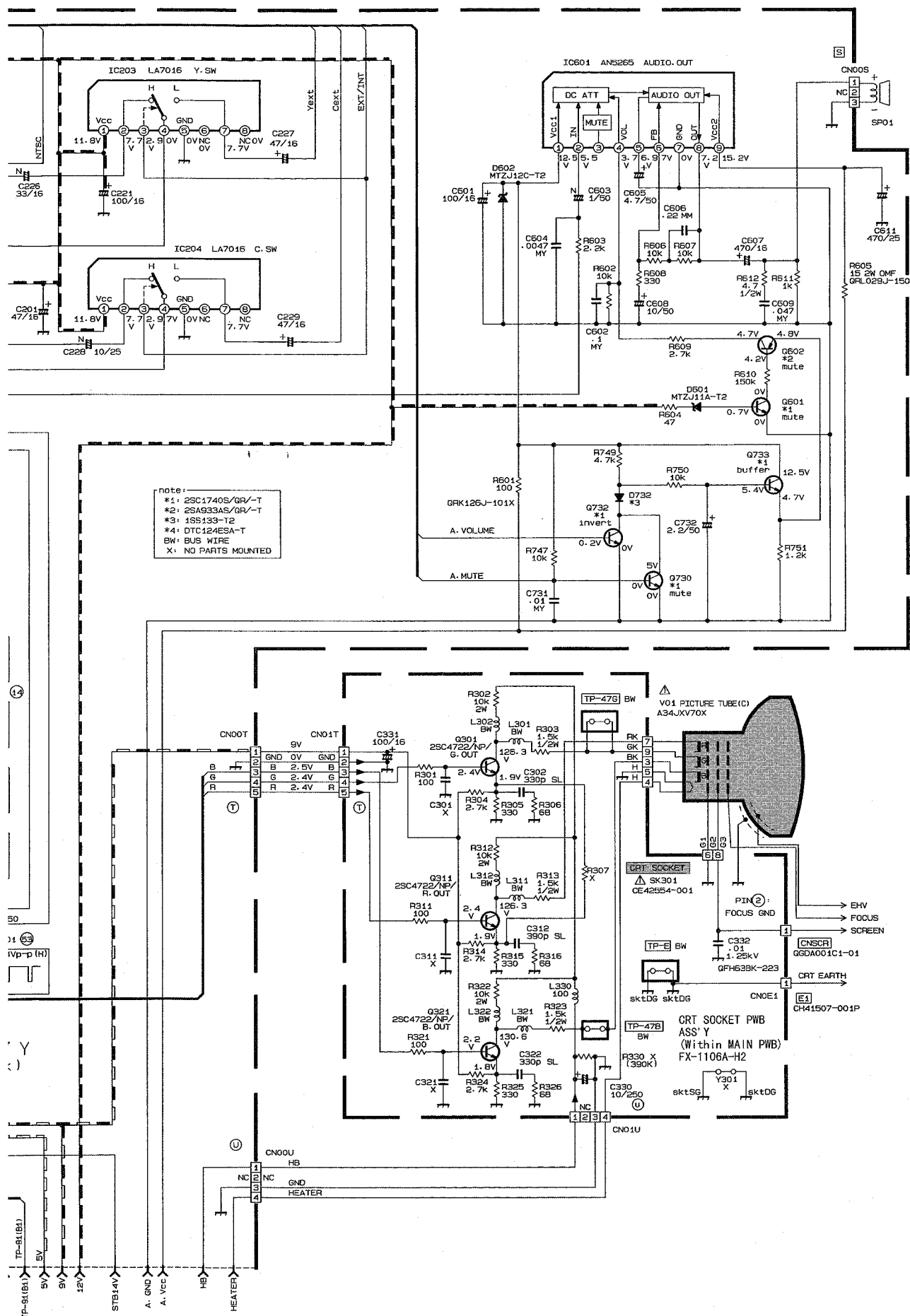
MD201 CE42599-002
COMB. FILTER

IC202 LA7015 NTSC SW

IC201 TB1226EN
VIDEO PROCESSOR

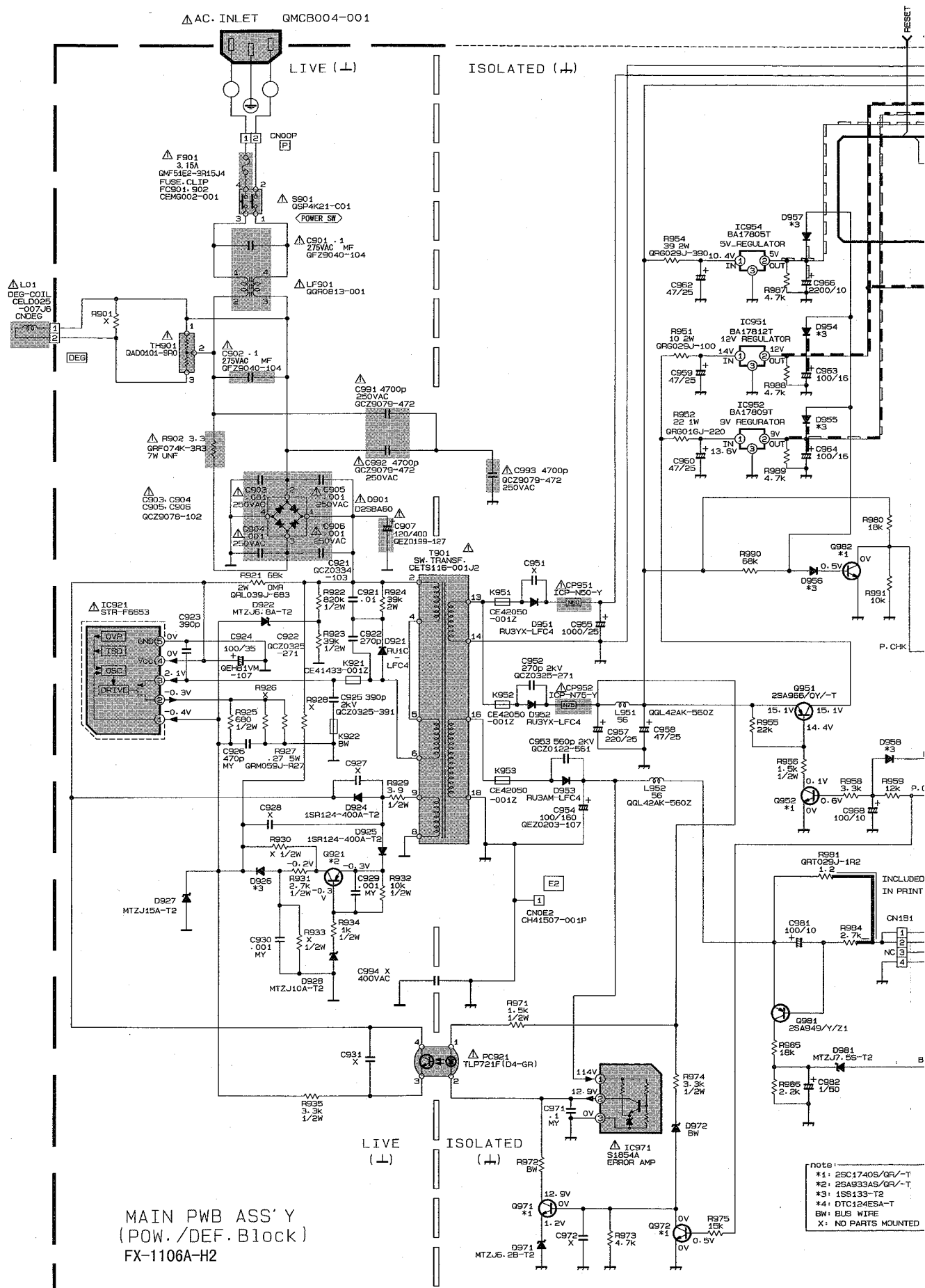
MAIN PWB ASS'Y
(V/C/AVSW Block)
FX-1106A-H2

TM-A13SU
TM-A13SU-W

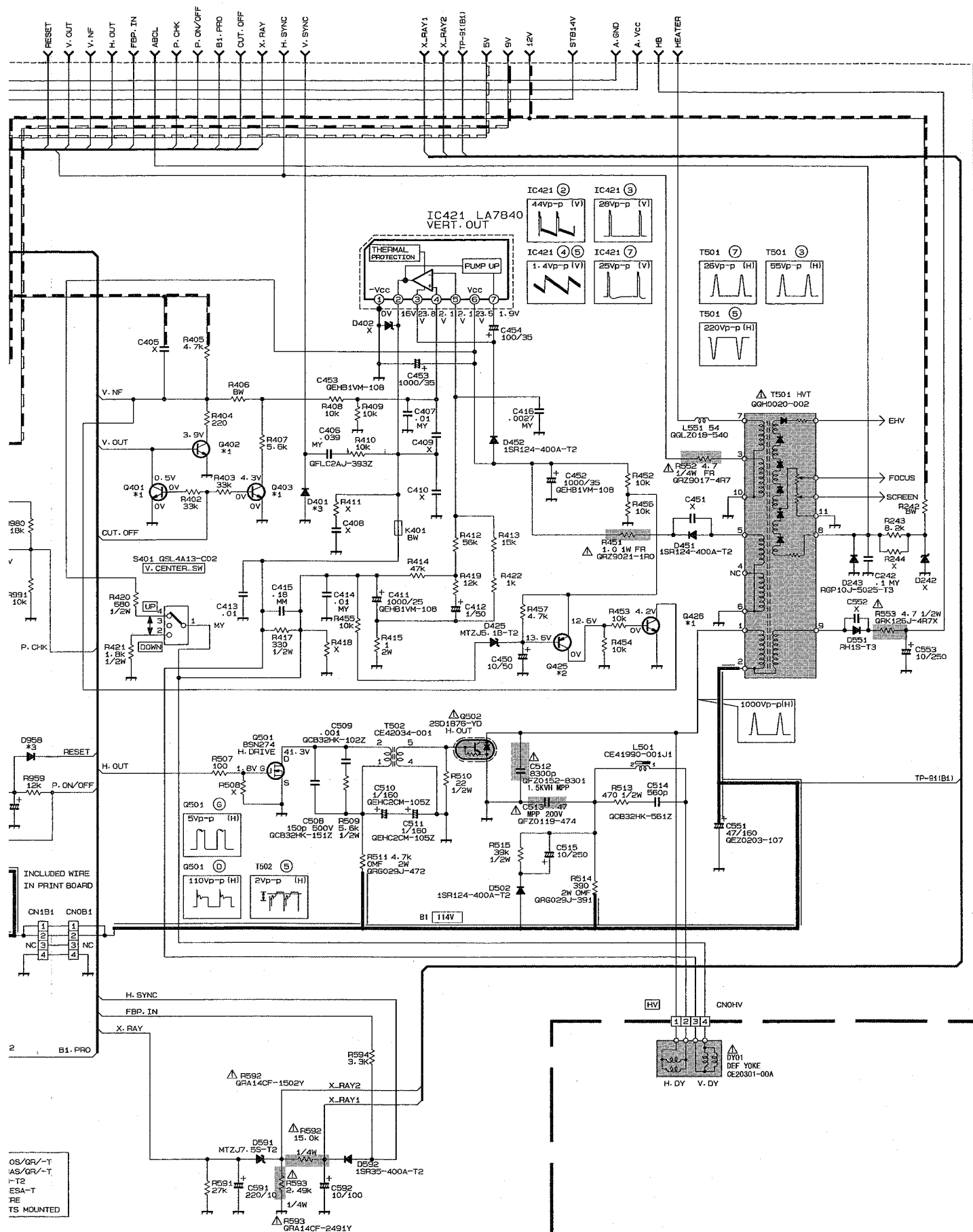


[TM-A13SU / TM-A13SU-W]

MAIN PWB CIRCUIT DIAGRAM [Power & DEF. Circuit]

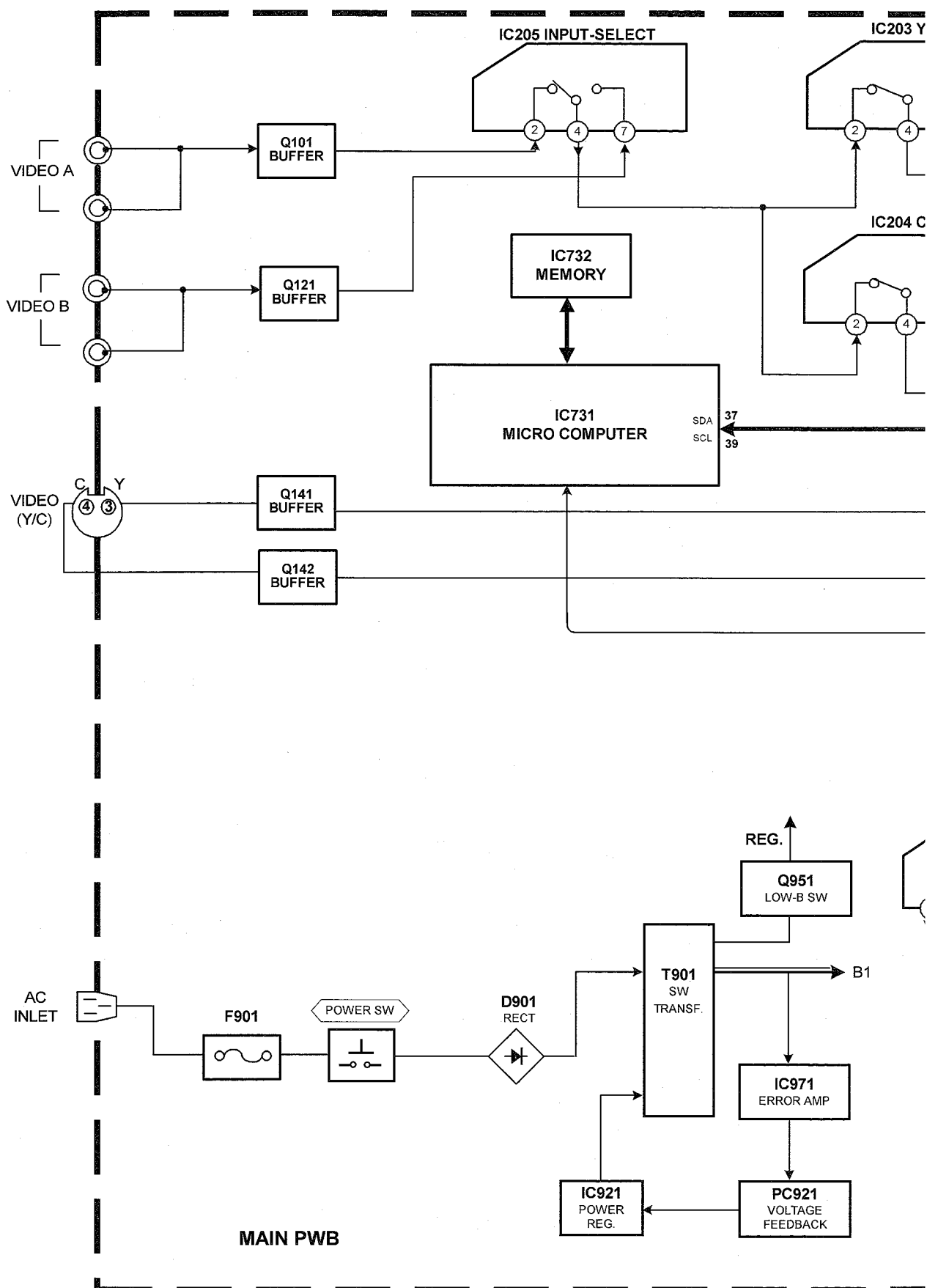


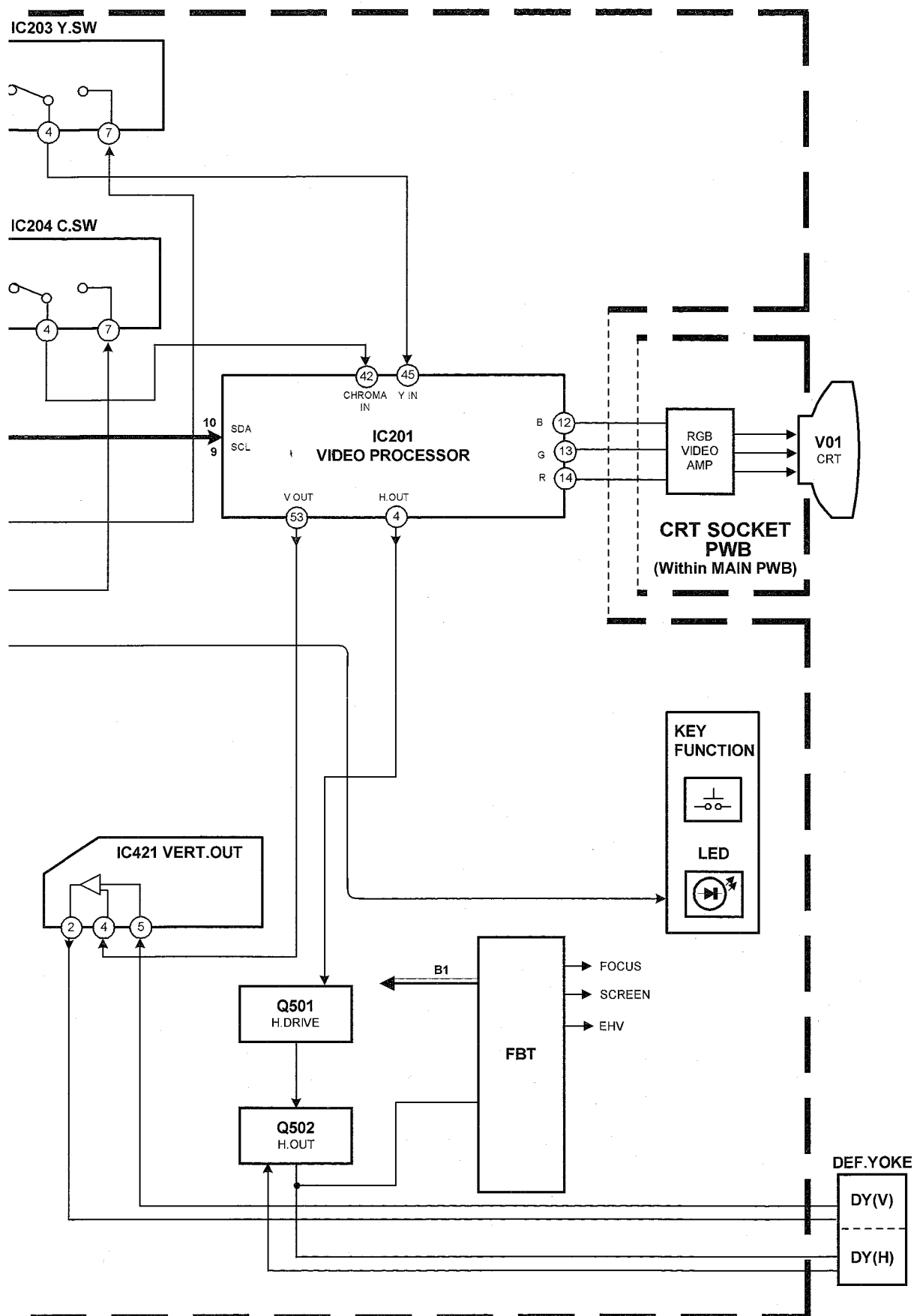
TM-A13SU
TM-A13SU-W



BLOCK DIAGRAM

[TM-A13UCV]

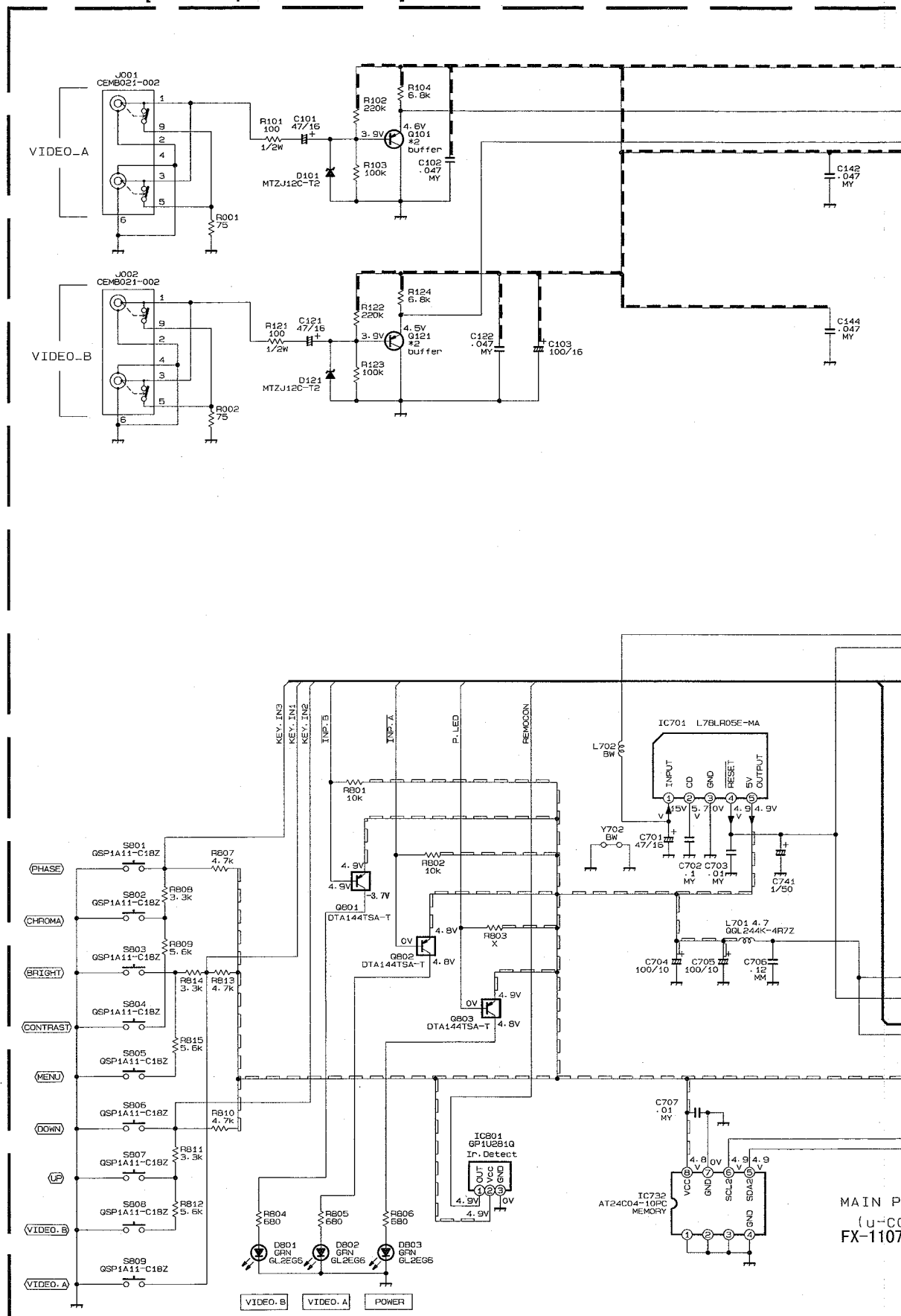


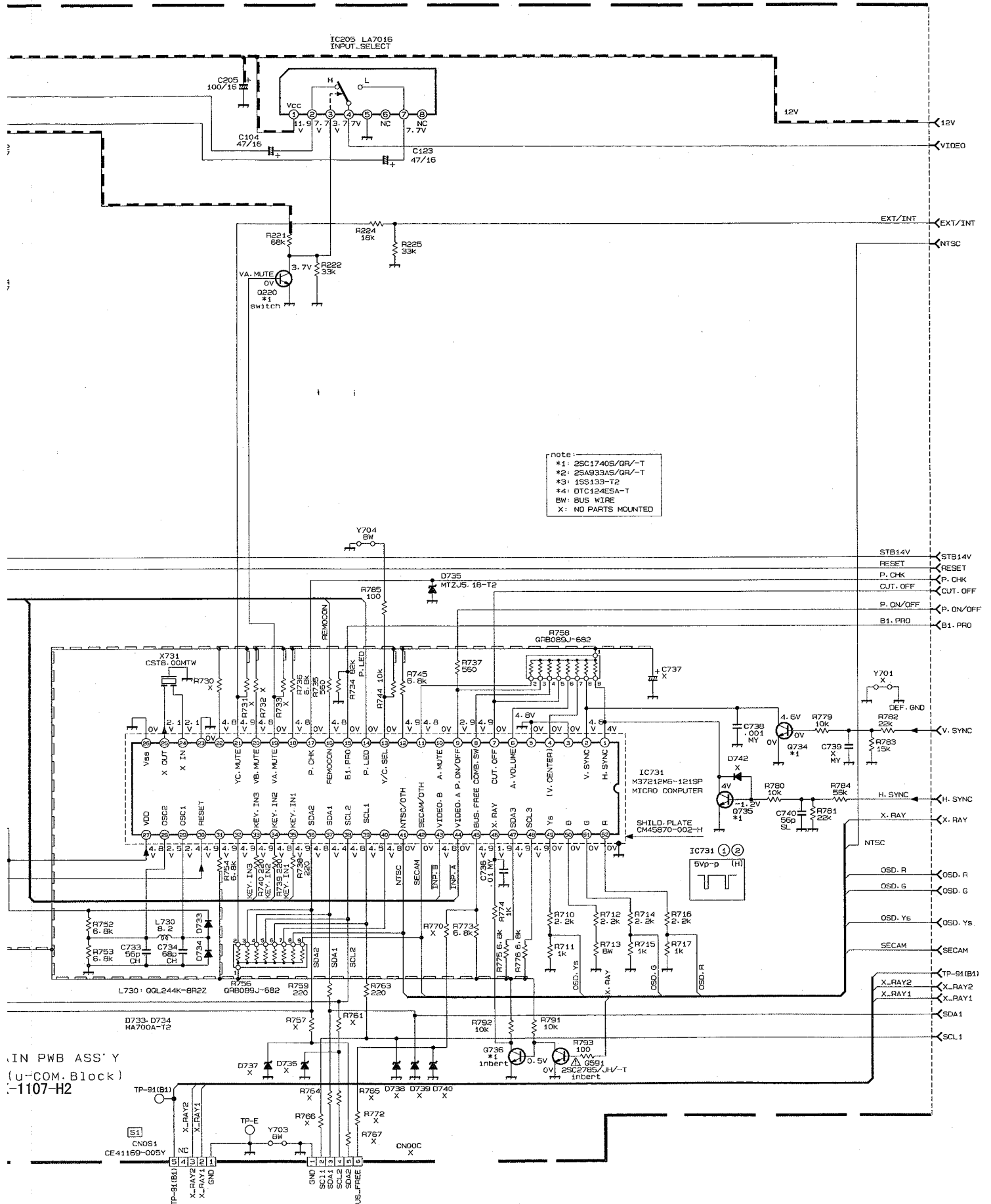


CIRCUIT DIAGRAMS

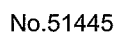
[TM-A13UCV]

MAIN PWB CIRCUIT DIAGRAM [Micro computer & Front control]





[illegible]



△AC INLET QMCB004-001

LIVE (⊥)

ISOLATED (⊥)

△F901 3.15A
GMF51E2-3R15J4
FUSE CLIP
FC901.902
CEM6002-001

△SS01 QSP4K21-C01
POWER SW

△C901 .1
275VAC MF
QFZ9040-104

△LF901
GGR0813-001

△C991 4700p
QFZ9079-472

△C992 4700p
QFZ9079-472

△C993 4700p
QFZ9079-472

△C903 .001
250VAC

△C904 .001
250VAC

△C905 .001
250VAC

△C906 .001
250VAC

△D901 D2SBA60

△C907 120/400
GEZ0199-127

△T901
SW. TRANSF.
CETS116-001J2

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2W
QFL039J-683

△D922 MTZJ6.8A-T2

△C923 390p

△C924 100/35
V

△C925 270p
QFZ0325-271

△C926 580
1/2W

△C927 X

△C928 X

△C929 X

△C930 .001
MY

△C931 X

△C932 10k
1/2W

△C933 1k
1/2W

△C934 1k
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△C935 3.3k
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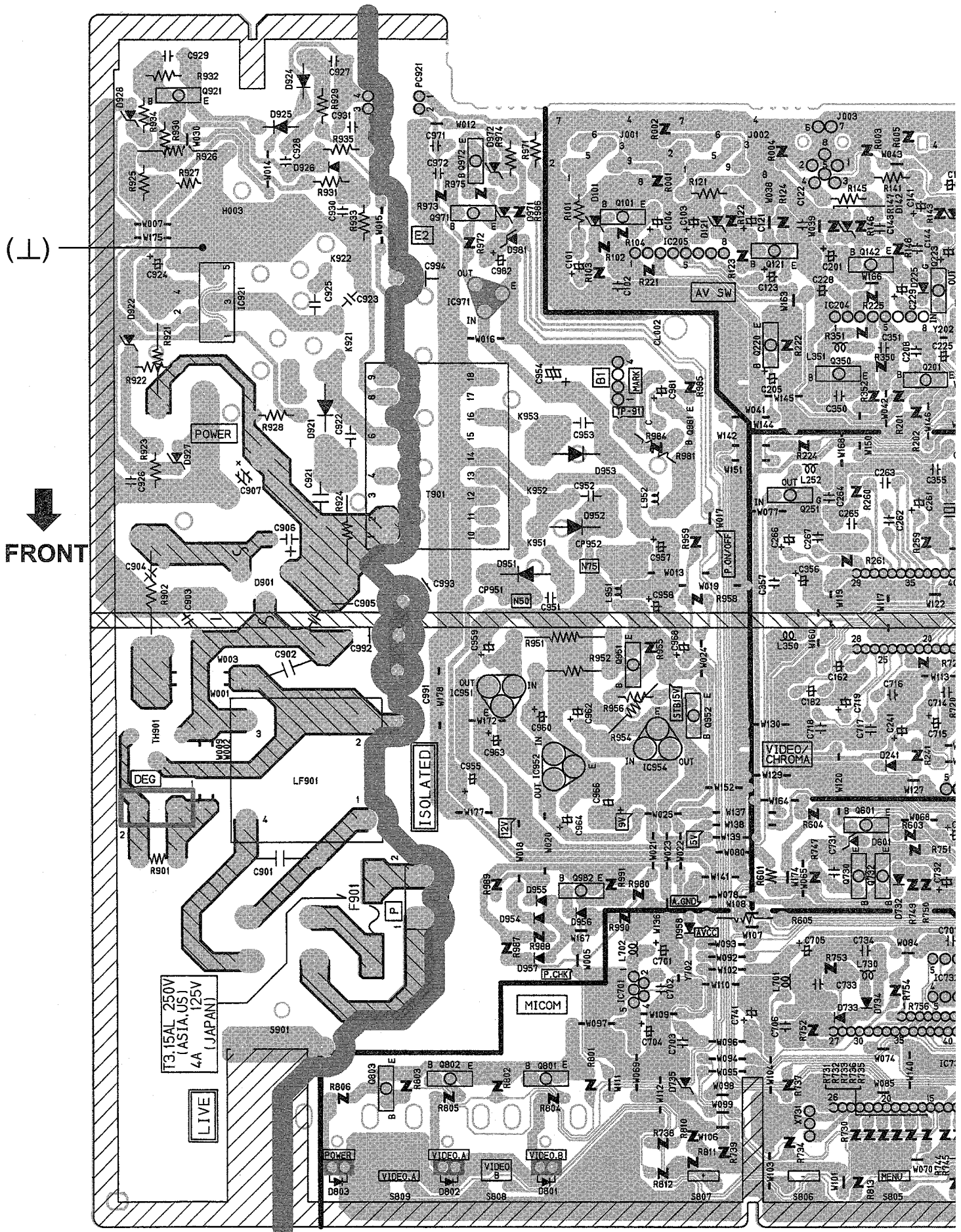
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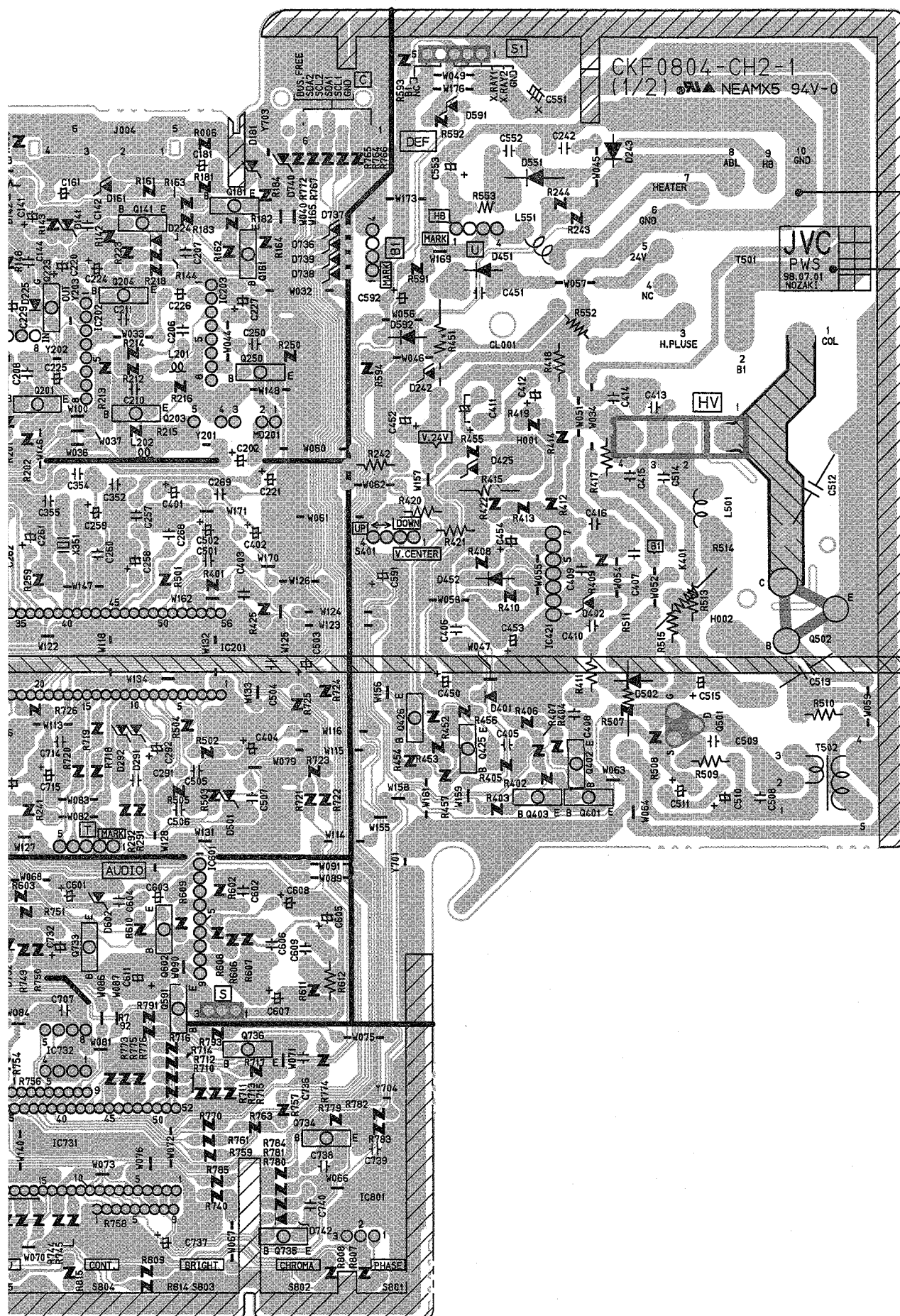
COMMON

PATTERN DIAGRAMS MAIN PWB PATTERN

TM-A13SU
TM-A13SU-W
TM-A13UCV



TM-A13SU
TM-A13SU-W
TM-A13UCV

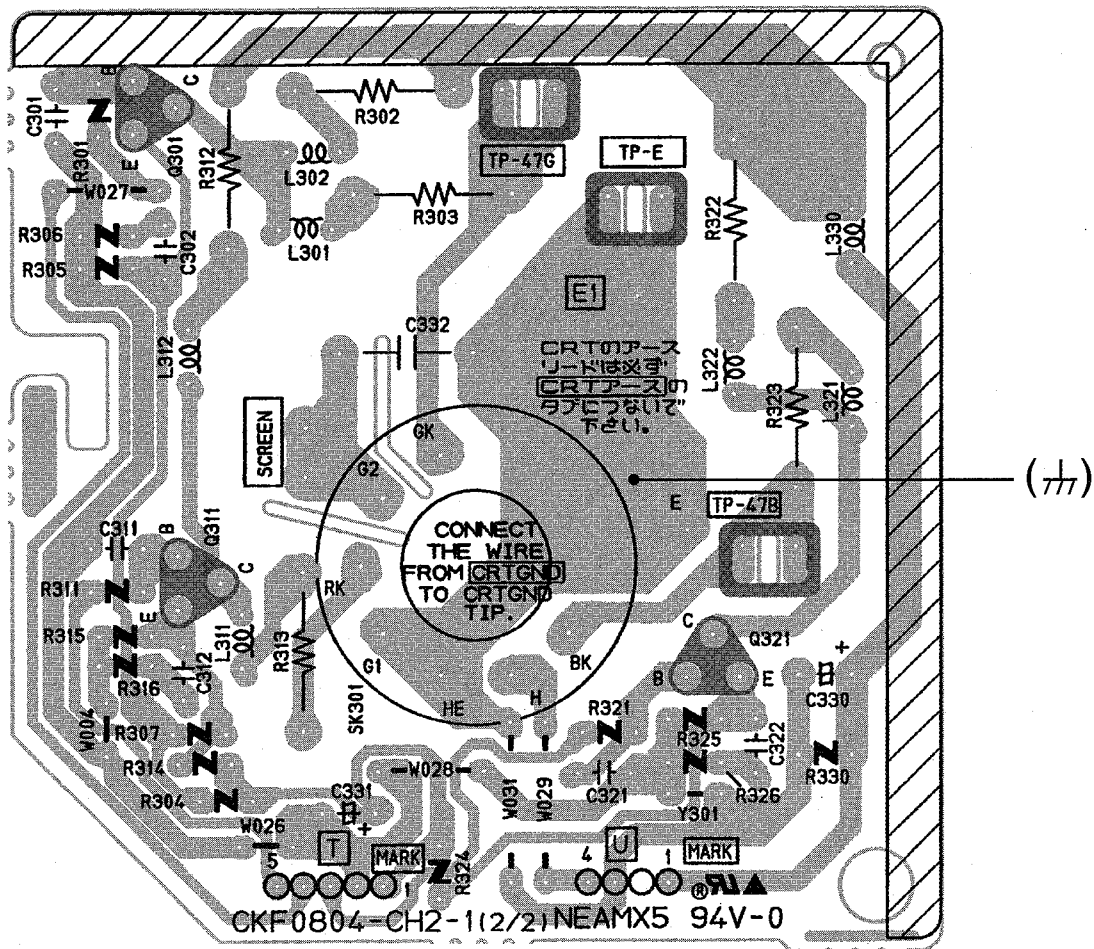


TP-E
(π)

TP-91
(B1)

CRT SOCKET PWB PATTERN (Within MAIN PWB)

TOP
↑



PARTS LIST

CAUTION

- The parts identified by the Δ symbol are important for the safety. Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines — in the Parts No. columns will not be supplied.
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

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USING P.W. BOARD

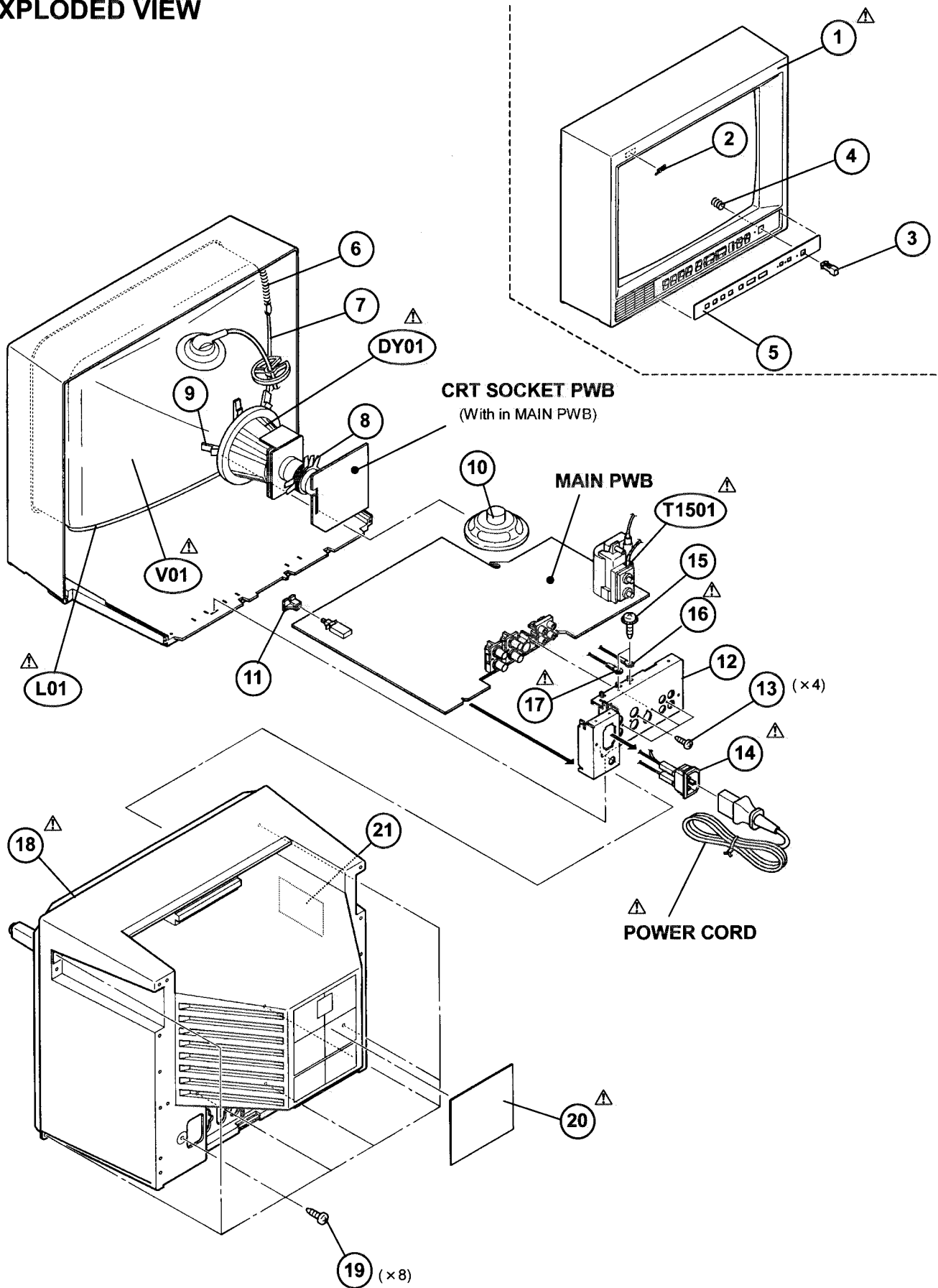
Model P.W.B ASS'Y	TM-A13SU	TM-A13SU-W	TM-A13UCV
MAIN P.W.B	FX-1106A-H2	←	FX-1107A-H2

I. TM-A13SU / TM-A13SU-W

EXPLODED VIEW PARTS LIST

△ Ref. No.	Part No.	Part Name	Description	Local
△ V01	A34JXV70X	PICTURE TUBE (C)		
△ DY01	CE20301-00A	DEF YOKE		
△ L01	CELD025-007J6	DEG. COIL		
△ T1501	QQH0020-002	H. V. TRANSF.		
△ 1	LC10039-001C-H	FRONT CABINET	TM-A13SU	
△ 1	LC10039-003A-H	FRONT CABINET	TM-A13SU-W	
2	CM48149-A01	JVC MARK		
3	CM46756-A01	POWER KNOB		
4	CM46757-001	SPRING		
5	LC20056-003A	CONTROL SHEET	TM-A13SU	
5	LC20056-006A	CONTROL SHEET	TM-A13SU-W	
6	A48457-3-H	SPRING		
7	CHGB0016-0A	BRAIDED WIRE		
8	CE42511-00A	P. C. MAGNET		
9	CE42153-00AJ1	WEDGE ASSY	(×3)	
10	CEBSS08P-01KJ2	SPEAKER	SP01	
11	CM48241-001	KNOB CAP		
12	LC30150-002A-H	TERMINAL BRACKET		
13	SBSF3010Z-H	TAPPING SCREW	(×4)	
△ 14	QMCB004-001	3P INLET		
15	CM44287-00B	ASSY SCREW	(×2)	
△ 16	CHGT0035-0B	RECEP WIRE ASSY	(BLACK WIRE)	
△ 17	CHGT0014-BA-G	RECEP WIRE ASSY	(YELLOW/GREEN SPIRAL WIRE)	
△ 18	LC10040-001D-H	REAR COVER	TM-A13SU	
△ 18	LC10040-002A-H	REAR COVER	TM-A13SU-W	
19	GBSF4016Z-H	TAPPING SCREW	(×8)	
△ 20	LC20192-001A-OL	ROLL R LABEL		
21	LC30475-001A-H	WARNING LABEL		

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN P.W. BOARD ASS'Y (FX-1106A)

[TM-A13SU / TM-A13SU-W]

Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1001-04	QRE141J-750Y	C R	75Ω 1/4W J	
R1101	QRE121J-101Y	C R	100Ω 1/2W J	
R1102	QRE141J-224Y	C R	220kΩ 1/4W J	
R1103	QRE141J-104Y	C R	100kΩ 1/4W J	
R1104	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1121	QRE121J-101Y	C R	100Ω 1/2W J	
R1122	QRE141J-224Y	C R	220kΩ 1/4W J	
R1123	QRE141J-104Y	C R	100kΩ 1/4W J	
R1124	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1141	QRE121J-101Y	C R	100Ω 1/2W J	
R1142	QRE141J-224Y	C R	220kΩ 1/4W J	
R1143	QRE141J-104Y	C R	100kΩ 1/4W J	
R1144	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1145	QRE121J-101Y	C R	100Ω 1/2W J	
R1146	QRE141J-224Y	C R	220kΩ 1/4W J	
R1147	QRE141J-104Y	C R	100kΩ 1/4W J	
R1148	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1161	QRE141J-223Y	C R	22kΩ 1/4W J	
R1162-63	QRE141J-104Y	C R	100kΩ 1/4W J	
R1164	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1181	QRE141J-223Y	C R	22kΩ 1/4W J	
R1182-83	QRE141J-104Y	C R	100kΩ 1/4W J	
R1184	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1215	QRE141J-152Y	C R	1.5kΩ 1/4W J	
R1216	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1221	QRE141J-683Y	C R	68kΩ 1/4W J	
R1222	QRE141J-333Y	C R	33kΩ 1/4W J	
R1223	QRE141J-103Y	C R	10kΩ 1/4W J	
R1224	QRE141J-183Y	C R	18kΩ 1/4W J	
R1225	QRE141J-333Y	C R	33kΩ 1/4W J	
R1241	QRE141J-103Y	C R	10kΩ 1/4W J	
R1243	QRE141J-822Y	C R	8.2kΩ 1/4W J	
R1250	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1259	QRE141J-224Y	C R	220kΩ 1/4W J	
R1261	QRE141J-273Y	C R	27kΩ 1/4W J	
R1291-92	QRE141J-391Y	C R	390Ω 1/4W J	
R1301	QRE141J-101Y	C R	100Ω 1/4W J	
R1302	QRL029J-103	OM R	10kΩ 2W J	
R1303	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1304	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1305	QRE141J-331Y	C R	330Ω 1/4W J	
R1306	QRE141J-680Y	C R	68Ω 1/4W J	
R1311	QRE141J-101Y	C R	100Ω 1/4W J	
R1312	QRL029J-103	OM R	10kΩ 2W J	
R1313	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1314	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1315	QRE141J-331Y	C R	330Ω 1/4W J	
R1316	QRE141J-680Y	C R	68Ω 1/4W J	
R1321	QRE141J-101Y	C R	100Ω 1/4W J	
R1322	QRL029J-103	OM R	10kΩ 2W J	
R1323	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1324	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1325	QRE141J-331Y	C R	330Ω 1/4W J	
R1326	QRE141J-680Y	C R	68Ω 1/4W J	
R1350	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1351	QRE141J-221Y	C R	220Ω 1/4W J	
R1401	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1402-03	QRE141J-333Y	C R	33kΩ 1/4W J	
R1404	QRE141J-221Y	C R	220Ω 1/4W J	
R1405	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1407	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1408-10	QRE141J-103Y	C R	10kΩ 1/4W J	
R1412	QRE141J-563Y	C R	56kΩ 1/4W J	
R1413	QRE141J-153Y	C R	15kΩ 1/4W J	

Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1414	QRE141J-473Y	C R	47kΩ 1/4W J	
R1415	QRT029J-1R0	MF R	1.0Ω 2W J	
R1417	QRE121J-331Y	C R	330Ω 1/2W J	
R1419	QRE141J-123Y	C R	12kΩ 1/4W J	
R1420	QRE121J-681Y	C R	680Ω 1/2W J	
R1421	QRE121J-182Y	C R	1.8kΩ 1/2W J	
R1422	QRE141J-102Y	C R	1kΩ 1/4W J	
R1425	QRE141J-101Y	C R	100Ω 1/4W J	
Δ R1451	QRZ9021-1R0	FUS1.R	1.0 Ω 1W J	
R1452-56	QRE141J-103Y	C R	10kΩ 1/4W J	
R1457	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1501	QRE141J-822Y	C R	8.2kΩ 1/4W J	
R1502	QRE141J-101Y	C R	100Ω 1/4W J	
R1503	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1504	QRE141J-102Y	C R	1kΩ 1/4W J	
R1505	QRE141J-104Y	C R	100kΩ 1/4W J	
R1507	QRE141J-101Y	C R	100Ω 1/4W J	
R1509	QRE121J-562Y	C R	5.6kΩ 1/2W J	
R1510	QRE121J-220Y	C R	22Ω 1/2W J	
R1511	QRG029J-472	OM R	4.7kΩ 2W J	
R1513	QRE121J-471Y	C R	470Ω 1/2W J	
R1514	QRG029J-391	OM R	390 Ω 2W J	
R1515	QRE121J-393Y	C R	39kΩ 1/2W J	
Δ R1552	QRZ9017-4R7	FUS1.R	4.7 Ω 1/4W J	
Δ R1553	QRK126J-4R7X	C R	4.7Ω 1/2W J	
R1591	QRE141J-273Y	C R	27kΩ 1/4W J	
Δ R1592	QRA14CF-1502Y	MF R	15kΩ 1/4W F	
Δ R1593	QRA14CF-2491Y	MF R	2.49kΩ 1/4W F	
R1594	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1601	QRK126J-101X	C R	100Ω 1/2W J	
R1602	QRE141J-103Y	C R	10kΩ 1/4W J	
R1603	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1604	QRE141J-470Y	C R	47Ω 1/4W J	
R1605	QRL029J-150	OM R	15Ω 2W J	
R1606-07	QRE141J-103Y	C R	10kΩ 1/4W J	
R1608	QRE141J-331Y	C R	330Ω 1/4W J	
R1609	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1610	QRE141J-154Y	C R	150kΩ 1/4W J	
R1611	QRE141J-102Y	C R	1kΩ 1/4W J	
R1612	QRE121J-4R7Y	C R	4.7Ω 1/2W J	
R1710	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1711	QRE141J-102Y	C R	1kΩ 1/4W J	
R1712	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1714	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1715	QRE141J-102Y	C R	1kΩ 1/4W J	
R1716	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1717	QRE141J-102Y	C R	1kΩ 1/4W J	
R1721-24	QRE141J-102Y	C R	1kΩ 1/4W J	
R1725	QRE141J-333Y	C R	33kΩ 1/4W J	
R1726	QRE141J-103Y	C R	10kΩ 1/4W J	
R1734	QRE141J-823Y	C R	82kΩ 1/4W J	
R1735	QRE141J-561Y	C R	560Ω 1/4W J	
R1736	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1737	QRE141J-561Y	C R	560Ω 1/4W J	
R1738-40	QRE141J-221Y	C R	220Ω 1/4W J	
R1744	QRE141J-103Y	C R	10kΩ 1/4W J	
R1745	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1747	QRE141J-103Y	C R	10kΩ 1/4W J	
R1749	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1750	QRE141J-103Y	C R	10kΩ 1/4W J	
R1751	QRE141J-122Y	C R	1.2kΩ 1/4W J	
R1752-54	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1756	QRB089J-682	NETW.R	6.8kΩ	
R1758	QRB089J-682	NETW.R	6.8kΩ	

△ Symbol No. Part No. Part Name Description Local

RESISTOR

R1759	QRE141J-221Y	C R	220Ω 1/4W J
R1763	QRE141J-221Y	C R	220Ω 1/4W J
R1773	QRE141J-682Y	C R	6.8kΩ 1/4W J
R1774	QRE141J-102Y	C R	1kΩ 1/4W J
R1775-76	QRE141J-682Y	C R	6.8kΩ 1/4W J
R1779-80	QRE141J-103Y	C R	10kΩ 1/4W J
R1781-82	QRE141J-223Y	C R	22kΩ 1/4W J
R1783	QRE141J-153Y	C R	15kΩ 1/4W J
R1784	QRE141J-563Y	C R	56kΩ 1/4W J
R1785	QRE141J-101Y	C R	100Ω 1/4W J
R1791-92	QRE141J-103Y	C R	10kΩ 1/4W J
R1793	QRE141J-101Y	C R	100Ω 1/4W J
R1801-02	QRE141J-103Y	C R	10kΩ 1/4W J
R1804-06	QRE141J-681Y	C R	680Ω 1/4W J
R1807	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1808	QRE141J-332Y	C R	3.3kΩ 1/4W J
R1809	QRE141J-562Y	C R	5.6kΩ 1/4W J
R1810	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1811	QRE141J-332Y	C R	3.3kΩ 1/4W J
R1812	QRE141J-562Y	C R	5.6kΩ 1/4W J
R1813	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1814	QRE141J-332Y	C R	3.3kΩ 1/4W J
R1815	QRE141J-562Y	C R	5.6kΩ 1/4W J
△ R1902	QR074K-3R3	UNF R	3.3 Ω 7W K
R1921	QRL039J-683	OM R	68kΩ 3W J
R1922	QRE121J-824Y	C R	820kΩ 1/2W J
R1923	QRE121J-393Y	C R	39kΩ 1/2W J
R1924	QRG029J-393	OM R	39kΩ 2W J
R1925	QRE121J-681Y	C R	680Ω 1/2W J
R1927	QRN059J-R27	MP R	0.27 Ω 5W J
R1929	QRE121J-389Y	C R	3.9Ω 1/2W J
R1931	QRE121J-272Y	C R	2.7kΩ 1/2W J
R1932	QRE121J-103Y	C R	10kΩ 1/2W J
R1934	QRE121J-102Y	C R	1kΩ 1/2W J
R1935	QRE121J-332Y	C R	3.3kΩ 1/2W J
R1951	QRG029J-100	OM R	10 Ω 2W J
R1952	QRG01GJ-220	OM R	22Ω 1W J
R1954	QRG029J-390	OM R	39 Ω 2W J
R1955	QRE141J-223Y	C R	22kΩ 1/4W J
R1956	QRE121J-152Y	C R	1.5kΩ 1/2W J
R1958	QRE141J-332Y	C R	3.3kΩ 1/4W J
R1959	QRE141J-123Y	C R	12kΩ 1/4W J
R1971	QRE121J-152Y	C R	1.5kΩ 1/2W J
R1973	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1974	QRE121J-332Y	C R	3.3kΩ 1/2W J
R1975	QRE141J-153Y	C R	15kΩ 1/4W J
R1980	QRE141J-183Y	C R	18kΩ 1/4W J
R1981	QRT029J-1R2	MF R	1.2Ω 2W J
R1984	QRE141J-272Y	C R	2.7kΩ 1/4W J
R1985	QRE141J-183Y	C R	18kΩ 1/4W J
R1986	QRE141J-222Y	C R	2.2kΩ 1/4W J
R1987-89	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1990	QRE141J-683Y	C R	68kΩ 1/4W J
R1991	QRE141J-103Y	C R	10kΩ 1/4W J

CAPACITOR

C1101	QETN1CM-476Z	E CAP.	47μF 16V M
C1102	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1103	QETN1CM-107Z	E CAP.	100μF 16V M
C1104	QETN1CM-476Z	E CAP.	47μF 16V M
C1121	QETN1CM-476Z	E CAP.	47μF 16V M
C1122	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1123	QETN1CM-476Z	E CAP.	47μF 16V M
C1141	QETN1HM-106Z	E CAP.	10μF 50V M
C1142	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1143	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1144	QFLC1HJ-473Z	M CAP.	0.047μF 50V J

△ Symbol No. Part No. Part Name Description Local

CAPACITOR

C1161-62	QENC1HM-105Z	BP E CAP.	1μF 50V M
C1181-82	QENC1HM-105Z	BP E CAP.	1μF 50V M
C1201-02	QETN1CM-476Z	E CAP.	47μF 16V M
C1205	QETN1CM-107Z	E CAP.	100μF 16V M
C1207	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1220	QETN1CM-476Z	E CAP.	47μF 16V M
C1221	QETN1CM-107Z	E CAP.	100μF 16V M
C1224	QETN1CM-476Z	E CAP.	47μF 16V M
C1225-26	QENC1CM-336Z	BP E CAP.	33μF 16V M
C1227	QETN1CM-476Z	E CAP.	47μF 16V M
C1228	QENC1EM-106Z	BP E CAP.	10μF 25V M
C1229	QETN1CM-476Z	E CAP.	47μF 16V M
C1241	QETN1HM-106Z	E CAP.	10μF 50V M
C1242	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1257	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1258	QETN1HM-475Z	E CAP.	4.7μF 50V M
C1259	QETN1CM-107Z	E CAP.	100μF 16V M
C1260	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1261	QETN1HM-106Z	E CAP.	10μF 50V M
C1262-63	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1265	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1266	QETN1HM-225Z	E CAP.	2.2μF 50V M
C1267	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1268	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1269	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1291	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1292	QETN1AM-107Z	E CAP.	100μF 10V M
C1302	QCS31HJ-331Z	C CAP.	330pF 50V J
C1312	QCS31HJ-391Z	C CAP.	390pF 50V J
C1322	QCS31HJ-331Z	C CAP.	330pF 50V J
C1330	QETN2EM-106Z	E CAP.	10μF 250V M
C1331	QETN1CM-107Z	E CAP.	100μF 16V M
C1332	QFH63BK-223	MM CAP.	0.022μF 1250V K
C1351	QCS31HJ-470Z	C CAP.	47pF 50V J
C1352	QCS31HJ-220Z	C CAP.	22pF 50V J
C1354	QCS31HJ-220Z	C CAP.	22pF 50V J
C1355	QDC31HJ-120Z	C CAP.	12pF 50V J
C1356	QETN1CM-107Z	E CAP.	100μF 16V M
C1357	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1401	QETN1HM-105Z	E CAP.	1μF 50V M
C1402	QEM61HK-225Z	E CAP.	2.2μF 50V K
C1403	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1404	QETN1HM-105Z	E CAP.	1μF 50V M
C1406	QFLC2AJ-393Z	M CAP.	0.039μF 100V J
C1407	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1411	QEH81VM-108	E CAP.	1000μF 35V M
C1412	QETN1HM-105Z	E CAP.	1μF 50V M
C1413	QFLC2AJ-103Z	M CAP.	0.01μF 100V J
C1414	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1415	QFV71HJ-184Z	MF CAP.	0.18μF 50V J
C1416	QFLC1HJ-272Z	M CAP.	2700pF 50V J
C1450	QETN1HM-106Z	E CAP.	10μF 50V M
C1452-53	QEH81VM-108	E CAP.	1000μF 35V M
C1454	QETN1VM-107Z	E CAP.	100μF 35V M
C1501	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1502	QETN1HM-105Z	E CAP.	1μF 50V M
C1503	QETN1CM-107Z	E CAP.	100μF 16V M
C1504-06	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1507	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1508	QCB32HK-151Z	C CAP.	150pF 500V K
C1509	QCB32HK-102Z	C CAP.	1000pF 500V K
C1510-11	QEH82CM-105Z	E CAP.	1μF 160V M
△ C1512	QFZ015Z-8301	MPP CAP.	8300pF 1.5kVH ±2.5%
△ C1513	QFZ0119-474	MPP CAP.	0.47μF 200V ±3%
C1514	QCB32HK-561Z	C CAP.	560pF 500V K
C1515	QETN2EM-106Z	E CAP.	10μF 250V M
C1551	QE20203-107	E CAP.	100μF 100V M
C1553	QETN2EM-106Z	E CAP.	10μF 250V M
C1591	QETN1AM-227Z	E CAP.	220μF 10V M
C1592	QETN2AM-106Z	E CAP.	10μF 100V M

△ Symbol No. Part No. Part Name Description Local

CAPACITOR

C1601	QETN1CM-107Z	E CAP.	100μF	16V	M
C1602	QFLC1HJ-104Z	M CAP.	0.1μF	50V	J
C1603	QENC1HM-105Z	BP E CAP.	1μF	50V	M
C1604	QFLC1HJ-472Z	M CAP.	4700pF	50V	J
C1605	QETN1HM-475Z	E CAP.	4.7μF	50V	M
C1606	QFV71HJ-224Z	MF CAP.	0.22μF	50V	J
C1607	QETN1CM-477Z	E CAP.	470μF	16V	M
C1608	QETN1HM-106Z	E CAP.	10μF	50V	M
C1609	QFLC1HJ-473Z	M CAP.	0.047μF	50V	J
C1611	QETN1EM-477Z	E CAP.	470μF	25V	M
C1701	QETN1CM-476Z	E CAP.	47μF	16V	M
C1702	QFLC1HJ-104Z	M CAP.	0.1μF	50V	J
C1703	QFLC1HJ-103Z	M CAP.	0.01μF	50V	J
C1704-05	QETN1AM-107Z	E CAP.	100μF	10V	M
C1706	QFV71HJ-124Z	MF CAP.	0.12μF	50V	J
C1707	QFLC1HJ-103Z	M CAP.	0.01μF	50V	J
C1714	QCB31HK-103Z	C CAP.	0.01μF	50V	K
C1715	QETN1CM-107Z	E CAP.	100μF	16V	M
C1716-18	QFLC1HJ-103Z	M CAP.	0.01μF	50V	J
C1719	QETN1HM-475Z	E CAP.	4.7μF	50V	M
C1731	QFLC1HJ-103Z	M CAP.	0.01μF	50V	J
C1732	QETN1HM-225Z	E CAP.	2.2μF	50V	M
C1733	QDC31HJ-560Z	C CAP.	56pF	50V	J
C1734	QDC31HJ-680Z	C CAP.	68pF	50V	J
C1736	QFLC1HJ-103Z	M CAP.	0.01μF	50V	J
C1738	QFLC1HJ-102Z	M CAP.	1000pF	50V	J
C1740	QCS31HJ-560Z	C CAP.	56pF	50V	J
C1741	QETN1HM-105Z	E CAP.	1μF	50V	M
△ C1901	QFZ9040-104	MF CAP.	0.1μF	275V	M
△ C1902	QFZ9040-104	MF CAP.	0.1μF	275V	M
△ C1903	QCZ9078-102	C CAP.	1000pF	250V	M
△ C1904	QCZ9078-102	C CAP.	1000pF	250V	M
△ C1905	QCZ9078-102	C CAP.	1000pF	250V	M
△ C1906	QCZ9078-102	C CAP.	1000pF	250V	M
△ C1907	QEZO199-127	E CAP.	120μF	400V	M
C1921	QCZ0334-103	C CAP.	0.01μF	500V	P
C1922	QCZ0325-271	C CAP.	270pF	2kV	P
C1923	QCZ0325-391	C CAP.	390pF	2kV	K
C1924	QEH81VM-107	E CAP.	100μF	35V	M
C1925	QCZ0325-391	C CAP.	390pF	2kV	K
C1926	QFLC1HJ-471Z	M CAP.	470pF	50V	J
C1929-30	QFLC1HJ-102Z	M CAP.	1000pF	50V	J
C1952	QCZ0325-271	C CAP.	270pF	2kV	K
C1953	QCZ0122-561	C CAP.	560pF	2kV	K
C1954	QEZO203-107	E CAP.	100μF	160V	M
C1955	QETN1EM-108	E CAP.	1000μF	25V	M
C1957	QETN1EM-227Z	E CAP.	220μF	25V	M
C1958-60	QETN1EM-476Z	E CAP.	47μF	25V	M
C1962	QETN1EM-476Z	E CAP.	47μF	25V	M
C1963-64	QETN1CM-107Z	E CAP.	100μF	16V	M
C1966	QETN1AM-228Z	E CAP.	2200μF	10V	M
C1968	QETN1AM-107Z	E CAP.	100μF	10V	M
C1971	QFLC1HJ-104Z	M CAP.	0.1μF	50V	J
C1981	QETN1AM-107Z	E CAP.	100μF	10V	M
C1982	QETN1HM-105Z	E CAP.	1μF	50V	M
△ C1991	QCZ9079-472	C CAP.	4700pF	250V	M
△ C1992	QCZ9079-472	C CAP.	4700pF	250V	M
△ C1993	QCZ9079-472	C CAP.	4700pF	250V	M

TRANSFORMER

△ T1501	QOH0020-002	H.V. TRANSF.			
T1502	CE42034-001	H.DRIVE TRANSF.			
△ T1901	CET5116-001J2	SW TRANSF.			

△ Symbol No. Part No. Part Name Description Local

COIL

L1202	QQL244K-270Z	PEAKING COIL			
L1330	QQL244J-101Z	COIL	100μH		
L1350-51	QQL244K-4R7Z	COIL	4.7μH		
L1501	CE41990-001J1	LINEARITY COIL			
L1551	QQL2018-540	HEATER CHOKE			
L1701	QQL244K-4R7Z	COIL	4.7μH		
L1730	QQL244K-8R2Z	COIL	8.2μH		
L1951-52	QQL42AK-560Z	COIL	56μH		

DIODE

D1101	MTZJ12C-T2	ZENER DIODE			
D1121	MTZJ12C-T2	ZENER DIODE			
D1141-42	MTZJ12C-T2	ZENER DIODE			
D1161	MTZJ12C-T2	ZENER DIODE			
D1181	MTZJ12C-T2	ZENER DIODE			
D1224-25	1SS133-T2	SI DIODE			
D1241	1SS133-T2	SI DIODE			
D1243	RGP10J-5025-T3	SI DIODE			
D1291-92	MTZJ5.1B-T2	ZENER DIODE			
D1401	1SS133-T2	SI DIODE			
D1425	MTZJ5.1B-T2	ZENER DIODE			
D1451-52	1SR124-400A-T2	SI DIODE			
D1501	MTZJ9.1B-T2	ZENER DIODE			
D1502	1SR124-400A-T2	SI DIODE			
D1551	RH15-T3	SI DIODE			
D1591	MTZJ7.5S-T2	ZENER DIODE			
D1592	1SR35-400A-T2	SI DIODE			
D1601	MTZJ11A-T2	ZENER DIODE			
D1602	MTZJ12C-T2	ZENER DIODE			
D1732	1SS133-T2	SI DIODE			
D1733-34	MA700A-T2	SI DIODE			
D1735	MTZJ5.1B-T2	ZENER DIODE			
△ D1801-03	GL2EG6	L.E.D. (GRN)			
△ D1901	DZ5BA60	BRIDGE DIODE			
D1921	RU1C-LFC4	SI DIODE			
D1922	MTZJ6.8A-T2	ZENER DIODE			
D1924-25	1SR124-400A-T2	SI DIODE			
D1926	1SS133-T2	SI DIODE			
D1927	MTZJ15A-T2	ZENER DIODE			
D1928	MTZJ10A-T2	ZENER DIODE			
D1951-52	RU3YX-LFC4	SI DIODE			
D1953	RU3AM-LFC4	SI DIODE			
D1954-58	1SS133-T2	SI DIODE			
D1971	MTZJ6.2B-T2	ZENER DIODE			
D1981	MTZJ7.5S-T2	ZENER DIODE			

TRANSISTOR

Q1101	2SA933AS/QR/-T	SI TRANSISTOR			
Q1121	2SA933AS/QR/-T	SI TRANSISTOR			
Q1141-42	2SA933AS/QR/-T	SI TRANSISTOR			
Q1161	2SC1740S/QR/-T	SI TRANSISTOR			
Q1181	2SC1740S/QR/-T	SI TRANSISTOR			
Q1203	2SC1740S/QR/-T	SI TRANSISTOR			
Q1220	2SC1740S/QR/-T	SI TRANSISTOR			
Q1223	DTC124ESA-T	DIGI. TRANSISTOR			
Q1250	2SC1740S/QR/-T	SI TRANSISTOR			
Q1301	2SC4722/NP/-	SI TRANSISTOR			
Q1311	2SC4722/NP/-	SI TRANSISTOR			
Q1321	2SC4722/NP/-	SI TRANSISTOR			
Q1350	2SC1740S/QR/-T	SI TRANSISTOR			
Q1401-03	2SC1740S/QR/-T	SI TRANSISTOR			
Q1425	2SA933AS/QR/-T	SI TRANSISTOR			
Q1426	2SC1740S/QR/-T	SI TRANSISTOR			

△ Q1501	BSN274	F.E.T.			
△ Q1502	2SD1876-YD	SI TRANSISTOR			H. OUT

Symbol No.	Part No.	Part Name	Description	Local
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TRANSISTOR

Q1591	25C2785/JH/-T	SI. TRANSISTOR		
Q1601	25C1740S/QR/-T	SI. TRANSISTOR		
Q1602	25A933AS/QR/-T	SI. TRANSISTOR		
Q1730	25C1740S/QR/-T	SI. TRANSISTOR		
Q1732-36	25C1740S/QR/-T	SI. TRANSISTOR		
Q1801-03	DTA144TSA-T	DIGI. TRANSISTOR		
Q1921	25A933AS/QR/-T	SI. TRANSISTOR		
Q1951	25A966/OY/-T	SI. TRANSISTOR		
Q1952	25C1740S/QR/-T	SI. TRANSISTOR		
Q1971-72	25C1740S/QR/-T	SI. TRANSISTOR		
Q1981	25A949/Y/Z1	SI. TRANSISTOR		
Q1982	25C1740S/QR/-T	SI. TRANSISTOR		

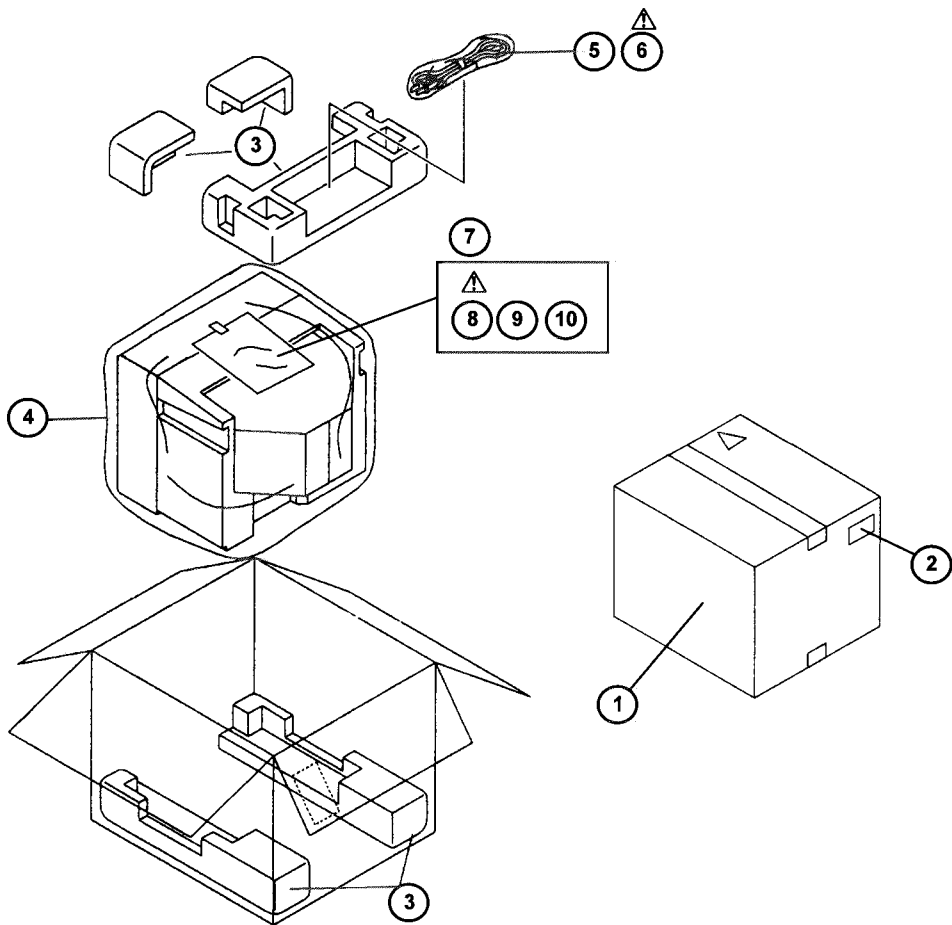
IC

IC1201	T81226EN	I. C. (DIGI-OTHER)		
IC1202-05	LA7016	I. C. (MONO-ANA)		
IC1421	LA7840	I. C. (MONO-ANA)		
IC1601	AN5265	I. C. (MONO-ANA)		
IC1701	L78LR05E-MA	I. C. (MONO-ANA)		
IC1731	M37212M6-121SP	I. C. (MICRO-COMP)		
IC1732	AT24C04-10PC	I. C. (EP-ROM)		
IC1801	GP1U281Q	IFR DETECT UNIT		
△ IC1921	STR-F6653	I. C. (HYBRID)		
IC1951	BA17812T	I. C.		
IC1952	BA17809T	I. C. (MONO-ANA)		
IC1954	BA17805T	I. C. (MONO-ANA)		
△ IC1971	S1854A	I. C. (MONO-ANA)		

OTHERS

△ CP1951	CM46978-A01-H	L. E. D. HOLDER		
△ CP1952	ICP-N50-Y	I. C. PROTECT		
△ F1901	ICP-N75-Y	I. C. PROTECT		
FC1901-02	QMF51E2-3R15J4	FUSE	3.15A	
J1001-02	CEMG002-001Z	FUSE CLIP		
J1003	CEMB021-002	BNC CONNECTOR		
J1004	QMCC004-C01	MINI DIN JACK		
	CEMN036-005	PIN JACK		
K1921	CE41433-001Z	BEADS CORE		
K1951-53	CE42050-001Z	CORE		
△ LF1901	QQR0813-001	LINE FILTER		
MD1201	CE42599-002	COMB FILTER		
△ PC1921	TLP721F(D4-GR)	I. C. (PH. COUPLER)		
S1401	QSL4A13-C02	LEVER SWITCH	V. CENTER	
S1801	QSP1A11-C18Z	PUSH SWITCH	PHASE	
S1802	QSP1A11-C18Z	PUSH SWITCH	CHROMA	
S1803	QSP1A11-C18Z	PUSH SWITCH	BRIGHT	
S1804	QSP1A11-C18Z	PUSH SWITCH	CONTRAST	
S1805	QSP1A11-C18Z	PUSH SWITCH	MENU	
S1806	QSP1A11-C18Z	PUSH SWITCH	DOWN	
S1807	QSP1A11-C18Z	PUSH SWITCH	UP	
S1808	QSP1A11-C18Z	PUSH SWITCH	VIDEO. B	
S1809	QSP1A11-C18Z	PUSH SWITCH	VIDEO. A	
△ S1901	QSP4K21-C01	PUSH SWITCH	POWER	
△ SK1301	CE42554-001	C. R. T. SOCKET		
△ TH1901	QAD0101-9R0	P. THERMISTOR		
X1351	QAX0354-001Z	X TAL		
X1731	CST8.00MTW	CER. RESONATOR		

PACKING



PACKING PARTS LIST

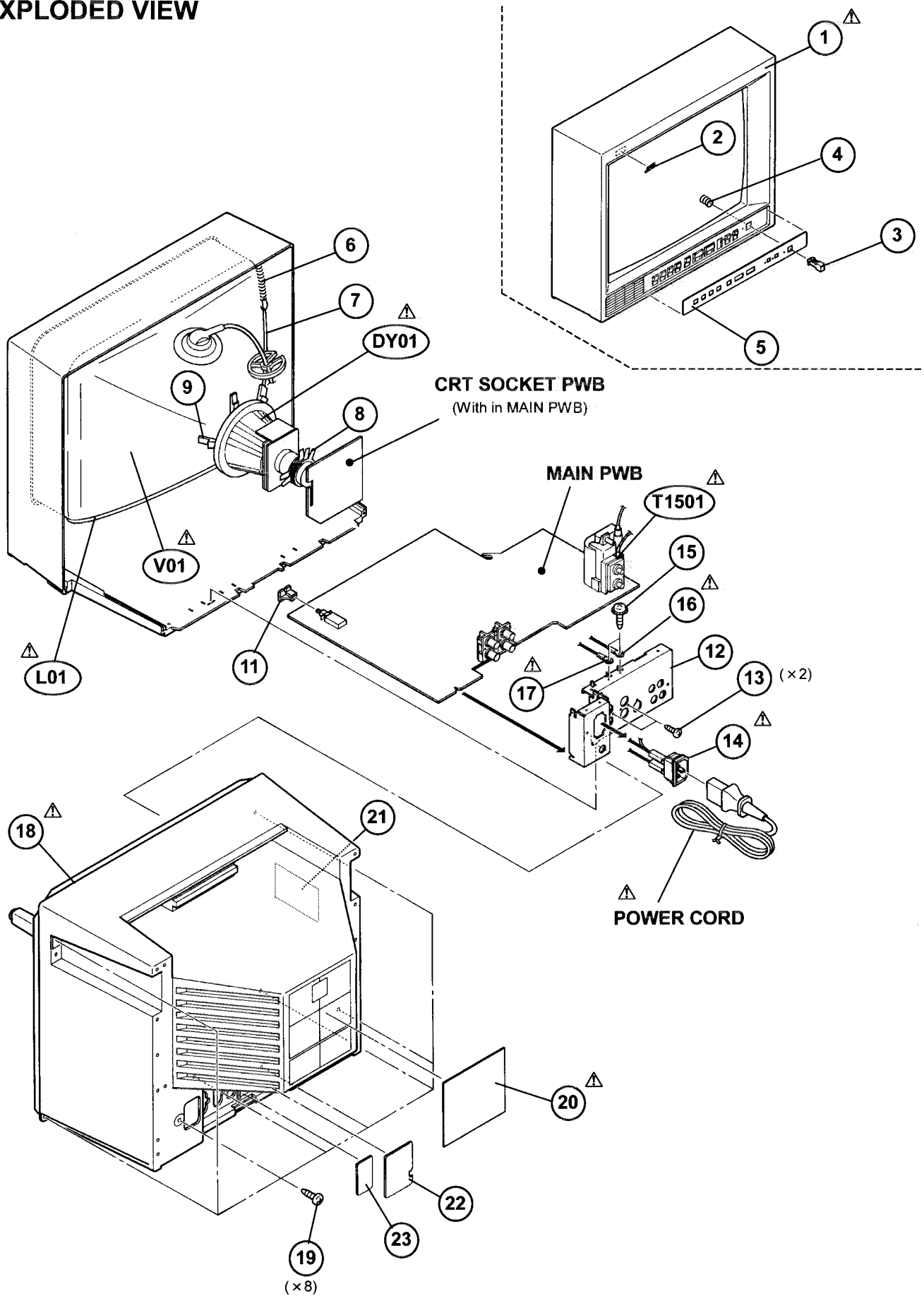
△ Ref.No.	Part No.	Part Name	Description	Local
1	CP11613-070-H	PACKING CASE	TM-A13SU	
1	CP11613-087-H	PACKING CASE	TM-A13SU-W	
2	CP30702-001	REC KEEPING CARD		
3	LC10041-002A-H	CUSHION ASSY	5pcs in 1set	
4	CP30967-002-H	POLY BAG		
5	QPGA012-03005	POLY BAG		
△ 6	QMP1110-244K	POWER CORD		
7	CP30966-001-H	POLY BAG		
△ 8	LCT0234-001A-H	INST BOOK	TM-A13SU	
△ 8	LCT0332-001A-H	INST BOOK	TM-A13SU-W	
9	BT-20104A	SERVICE CARD		
10	BT-51010-1	WARRANTY CARD		

II. TM-A13UCV

EXPLODED VIEW PARTS LIST

△ Ref. No.	Part No.	Part Name	Description	Local
△ V01	A34JXV70X	PICTURE TUBE (C)		
△ DY01	CE20301-00A	DEF YOKE		
△ L01	CELD025-007J6	DEG. COIL		
△ T1501	QQH0020-002	H. V. TRANSF.		
△ 1	LC10039-001C-H	FRONT CABINET		
2	CM48149-A01	JVC MARK		
3	CM46756-A01	POWER KNOB		
4	CM46757-001	SPRING		
5	LC20056-004A	CONTROL SHEET		
6	A48457-3-H	SPRING		
7	CHGB0016-0A	BRAIDED WIRE		
8	CE42511-00A	P. C. MAGNET		
9	CE42153-00AJ1	WEDGE ASSY	(× 3)	
11	CM48241-001	KNOB CAP		
12	LC30150-002A-H	TERMINAL BRACKET		
13	SBSF3010Z-H	TAPPING SCREW	(× 2)	
△ 14	QMCB004-001	3P INLET		
15	CM44287-00B	ASSY SCREW	(× 2)	
△ 16	CHGT0035-0B	RECEP WIRE ASSY	(BLACK WIRE)	
△ 17	CHGT0014-BA-G	RECEP WIRE ASSY	(YELLOW/GREEN SPIRAL WIRE)	
△ 18	LC10040-001D-H	REAR COVER		
19	GBSF4016Z-H	TAPPING SCREW	(× 8)	
△ 20	LC20192-001A-OL	ROLL R LABEL		
21	LC30475-001A-H	WARNING LABEL		
22	LC40252-001A-H	AUDIO COVER		
23	LC40253-001A-H	Y/C COVER		

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN P.W. BOARD ASS'Y (FX-1107A)

[TM-A13UCV]

Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1001-02	QRE141J-750Y	C R	75Ω 1/4W J	
R1101	QRE121J-101Y	C R	100Ω 1/2W J	
R1102	QRE141J-224Y	C R	220kΩ 1/4W J	
R1103	QRE141J-104Y	C R	100kΩ 1/4W J	
R1104	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1121	QRE121J-101Y	C R	100Ω 1/2W J	
R1122	QRE141J-224Y	C R	220kΩ 1/4W J	
R1123	QRE141J-104Y	C R	100kΩ 1/4W J	
R1124	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1215	QRE141J-152Y	C R	1.5kΩ 1/4W J	
R1216	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1221	QRE141J-683Y	C R	68kΩ 1/4W J	
R1222	QRE141J-333Y	C R	33kΩ 1/4W J	
R1224	QRE141J-183Y	C R	18kΩ 1/4W J	
R1225	QRE141J-333Y	C R	33kΩ 1/4W J	
R1241	QRE141J-103Y	C R	10kΩ 1/4W J	
R1243	QRE141J-822Y	C R	8.2kΩ 1/4W J	
R1250	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1259	QRE141J-224Y	C R	220kΩ 1/4W J	
R1261	QRE141J-273Y	C R	27kΩ 1/4W J	
R1291-92	QRE141J-391Y	C R	390Ω 1/4W J	
R1301	QRE141J-101Y	C R	100Ω 1/4W J	
R1302	QRL029J-103	OM R	10kΩ 2W J	
R1303	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1304	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1305	QRE141J-331Y	C R	330Ω 1/4W J	
R1306	QRE141J-680Y	C R	68Ω 1/4W J	
R1311	QRE141J-101Y	C R	100Ω 1/4W J	
R1312	QRL029J-103	OM R	10kΩ 2W J	
R1313	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1314	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1315	QRE141J-331Y	C R	330Ω 1/4W J	
R1316	QRE141J-680Y	C R	68Ω 1/4W J	
R1321	QRE141J-101Y	C R	100Ω 1/4W J	
R1322	QRL029J-103	OM R	10kΩ 2W J	
R1323	QRZ0107-152Z	C R	1.5kΩ 1/2W K	
R1324	QRE141J-272Y	C R	2.7kΩ 1/4W J	
R1325	QRE141J-331Y	C R	330Ω 1/4W J	
R1326	QRE141J-680Y	C R	68Ω 1/4W J	
R1350	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1351	QRE141J-221Y	C R	220Ω 1/4W J	
R1401	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1402-03	QRE141J-333Y	C R	33kΩ 1/4W J	
R1404	QRE141J-221Y	C R	220Ω 1/4W J	
R1405	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1407	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1408-10	QRE141J-103Y	C R	10kΩ 1/4W J	
R1412	QRE141J-563Y	C R	56kΩ 1/4W J	
R1413	QRE141J-153Y	C R	15kΩ 1/4W J	
R1414	QRE141J-473Y	C R	47kΩ 1/4W J	
R1415	QRT029J-1R0	MF R	1.0Ω 2W J	
R1417	QRE121J-331Y	C R	330Ω 1/2W J	
R1419	QRE141J-123Y	C R	12kΩ 1/4W J	
R1420	QRE121J-681Y	C R	680Ω 1/2W J	
R1421	QRE121J-182Y	C R	1.8kΩ 1/2W J	
R1422	QRE141J-102Y	C R	1kΩ 1/4W J	
R1425	QRE141J-101Y	C R	100Ω 1/4W J	
△ R1451	QRZ9021-1R0	FUSI.R	1.0 Ω 1W J	
R1452-56	QRE141J-103Y	C R	10kΩ 1/4W J	
R1457	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1501	QRE141J-822Y	C R	8.2kΩ 1/4W J	
R1502	QRE141J-101Y	C R	100Ω 1/4W J	
R1503	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1504	QRE141J-102Y	C R	1kΩ 1/4W J	

Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R1505	QRE141J-104Y	C R	100kΩ 1/4W J	
R1507	QRE141J-101Y	C R	100Ω 1/4W J	
R1509	QRE121J-562Y	C R	5.6kΩ 1/2W J	
R1510	QRE121J-220Y	C R	22Ω 1/2W J	
R1511	QRG029J-472	OM R	4.7kΩ 2W J	
R1513	QRE121J-471Y	C R	470Ω 1/2W J	
R1514	QRG029J-391	OM R	390 Ω 2W J	
R1515	QRE121J-393Y	C R	39kΩ 1/2W J	
△ R1552	QRZ9017-4R7	FUSI.R	4.7 Ω 1/4W J	
△ R1553	QRK126J-4R7X	C R	4.7Ω 1/2W J	
R1591	QRE141J-273Y	C R	27kΩ 1/4W J	
△ R1592	QRA14CF-1502Y	MF R	15kΩ 1/4W F	
△ R1593	QRA14CF-2491Y	MF R	2.49kΩ 1/4W F	
R1594	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1710	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1711	QRE141J-102Y	C R	1kΩ 1/4W J	
R1712	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1714	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1715	QRE141J-102Y	C R	1kΩ 1/4W J	
R1716	QRE141J-222Y	C R	2.2kΩ 1/4W J	
R1717	QRE141J-102Y	C R	1kΩ 1/4W J	
R1721-24	QRE141J-102Y	C R	1kΩ 1/4W J	
R1725	QRE141J-333Y	C R	33kΩ 1/4W J	
R1726	QRE141J-103Y	C R	10kΩ 1/4W J	
R1734	QRE141J-823Y	C R	82kΩ 1/4W J	
R1735	QRE141J-561Y	C R	560Ω 1/4W J	
R1736	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1737	QRE141J-561Y	C R	560Ω 1/4W J	
R1738-40	QRE141J-221Y	C R	220Ω 1/4W J	
R1744	QRE141J-103Y	C R	10kΩ 1/4W J	
R1745	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1752-54	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1756	QRB089J-682	NETW.R	6.8kΩ	
R1758	QRB089J-682	NETW.R	6.8kΩ	
R1759	QRE141J-221Y	C R	220Ω 1/4W J	
R1763	QRE141J-221Y	C R	220Ω 1/4W J	
R1773	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1774	QRE141J-102Y	C R	1kΩ 1/4W J	
R1775-76	QRE141J-682Y	C R	6.8kΩ 1/4W J	
R1779-80	QRE141J-103Y	C R	10kΩ 1/4W J	
R1781-82	QRE141J-223Y	C R	22kΩ 1/4W J	
R1783	QRE141J-153Y	C R	15kΩ 1/4W J	
R1784	QRE141J-563Y	C R	56kΩ 1/4W J	
R1785	QRE141J-101Y	C R	100Ω 1/4W J	
R1791-92	QRE141J-103Y	C R	10kΩ 1/4W J	
R1793	QRE141J-101Y	C R	100Ω 1/4W J	
R1801-02	QRE141J-103Y	C R	10kΩ 1/4W J	
R1804-06	QRE141J-681Y	C R	680Ω 1/4W J	
R1807	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1808	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1809	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1810	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1811	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1812	QRE141J-562Y	C R	5.6kΩ 1/4W J	
R1813	QRE141J-472Y	C R	4.7kΩ 1/4W J	
R1814	QRE141J-332Y	C R	3.3kΩ 1/4W J	
R1815	QRE141J-562Y	C R	5.6kΩ 1/4W J	
△ R1902	QRF074K-3R3	UNF.R	3.3 Ω 7W K	
R1921	QRL039J-683	OM R	68kΩ 3W J	
R1922	QRE121J-824Y	C R	820kΩ 1/2W J	
R1923	QRE121J-393Y	C R	39kΩ 1/2W J	
R1924	QRG029J-393	OM R	39kΩ 2W J	
R1925	QRE121J-681Y	C R	680Ω 1/2W J	
R1927	QRW059J-R27	MP R	0.27 Ω 5W J	

△ Symbol No. Part No. Part Name Description Local

RESISTOR

R1929	QRE121J-3R9Y	C R	3.9Ω 1/2W J
R1931	QRE121J-272Y	C R	2.7kΩ 1/2W J
R1932	QRE121J-103Y	C R	10kΩ 1/2W J
R1934	QRE121J-102Y	C R	1kΩ 1/2W J
R1935	QRE121J-332Y	C R	3.3kΩ 1/2W J
R1951	QRG029J-100	OM R	10 Ω 2W J
R1952	QRG016J-220	OM R	22Ω 1W J
R1954	QRG029J-390	OM R	39 Ω 2W J

R1955	QRE141J-223Y	C R	22kΩ 1/4W J
R1956	QRE121J-152Y	C R	1.5kΩ 1/2W J
R1958	QRE141J-332Y	C R	3.3kΩ 1/4W J
R1959	QRE141J-123Y	C R	12kΩ 1/4W J
R1971	QRE121J-152Y	C R	1.5kΩ 1/2W J
R1973	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1974	QRE121J-332Y	C R	3.3kΩ 1/2W J
R1975	QRE141J-153Y	C R	15kΩ 1/4W J

R1980	QRE141J-183Y	C R	18kΩ 1/4W J
R1981	QRT029J-1R2	MF R	1.2Ω 2W J
R1984	QRE141J-272Y	C R	2.7kΩ 1/4W J
R1985	QRE141J-183Y	C R	18kΩ 1/4W J
R1986	QRE141J-222Y	C R	2.2kΩ 1/4W J
R1987-89	QRE141J-472Y	C R	4.7kΩ 1/4W J
R1990	QRE141J-683Y	C R	68kΩ 1/4W J
R1991	QRE141J-103Y	C R	10kΩ 1/4W J

CAPACITOR

C1101	QETN1CM-476Z	E CAP.	47μF 16V M
C1102	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1103	QETN1CM-107Z	E CAP.	100μF 16V M
C1104	QETN1CM-476Z	E CAP.	47μF 16V M
C1121	QETN1CM-476Z	E CAP.	47μF 16V M
C1122	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1123	QETN1CM-476Z	E CAP.	47μF 16V M
C1142	QFLC1HJ-473Z	M CAP.	0.047μF 50V J

C1144	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1201-02	QETN1CM-476Z	E CAP.	47μF 16V M
C1205	QETN1CM-107Z	E CAP.	100μF 16V M
C1207	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1220	QETN1CM-476Z	E CAP.	47μF 16V M
C1221	QETN1CM-107Z	E CAP.	100μF 16V M
C1224	QETN1CM-476Z	E CAP.	47μF 16V M
C1225-26	QENC1CM-336Z	BP E CAP.	33μF 16V M

C1228	QENC1EM-106Z	BP E CAP.	10μF 25V M
C1241	QETN1HM-106Z	E CAP.	10μF 50V M
C1242	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1257	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1258	QETN1HM-475Z	E CAP.	4.7μF 50V M
C1259	QETN1CM-107Z	E CAP.	100μF 16V M
C1260	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1261	QETN1HM-106Z	E CAP.	10μF 50V M

C1262-63	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1265	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1266	QETN1HM-225Z	E CAP.	2.2μF 50V M
C1267	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1268	QFLC1HJ-473Z	M CAP.	0.047μF 50V J
C1269	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1291	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1292	QETN1AM-107Z	E CAP.	100μF 10V M

C1302	QCS31HJ-331Z	C CAP.	330pF 50V J
C1312	QCS31HJ-391Z	C CAP.	390pF 50V J
C1322	QCS31HJ-331Z	C CAP.	330pF 50V J
C1330	QETN2EM-106Z	E CAP.	10μF 250V M
C1331	QETN1CM-107Z	E CAP.	100μF 16V M
C1332	QFH63BK-223	MM CAP.	0.022μF 1250V K
C1351	QCS31HJ-470Z	C CAP.	47pF 50V J
C1352	QCS31HJ-220Z	C CAP.	22pF 50V J

C1354	QCS31HJ-220Z	C CAP.	22pF 50V J
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△ Symbol No. Part No. Part Name Description Local

CAPACITOR

C1355	QDC31HJ-120Z	C CAP.	12pF 50V J
C1356	QETN1CM-107Z	E CAP.	100μF 16V M
C1357	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1401	QETN1HM-105Z	E CAP.	1μF 50V M
C1402	QEM61HK-225Z	E CAP.	2.2μF 50V K
C1403	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1404	QETN1HM-105Z	E CAP.	1μF 50V M
C1406	QFLC2AJ-393Z	M CAP.	0.039μF 100V J

C1407	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1411	QEH81VM-108	E CAP.	1000μF 35V M
C1412	QETN1HM-105Z	E CAP.	1μF 50V M
C1413	QFLC2AJ-103Z	M CAP.	0.01μF 100V J
C1414	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1415	QFV71HJ-184Z	MF CAP.	0.18μF 50V J
C1416	QFLC1HJ-272Z	M CAP.	2700pF 50V J
C1450	QETN1HM-106Z	E CAP.	10μF 50V M

C1452-53	QEH81VM-108	E CAP.	1000μF 35V M
C1454	QETN1VM-107Z	E CAP.	100μF 35V M
C1501	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1502	QETN1HM-105Z	E CAP.	1μF 50V M
C1503	QETN1CM-107Z	E CAP.	100μF 16V M
C1504-06	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1507	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1508	QCB32HK-151Z	C CAP.	150pF 500V K

C1509	QCB32HK-102Z	C CAP.	1000pF 500V K
C1510-11	QEH82CM-105Z	E CAP.	1μF 160V M
△ C1512	QFZ015Z-8301	MPP CAP.	8300pF1.5kVH ±2.5%
△ C1513	QFZ0119-474	MPP CAP.	0.47μF 200V ±3%
C1514	QCB32HK-561Z	C CAP.	560pF 500V K
C1515	QETN2EM-106Z	E CAP.	10μF 250V M
C1551	QEZ0203-107	E CAP.	100μF 100V M
C1553	QETN2EM-106Z	E CAP.	10μF 250V M

C1591	QETN1AM-227Z	E CAP.	220μF 10V M
C1592	QETN2AM-106Z	E CAP.	10μF 100V M
C1701	QETN1CM-476Z	E CAP.	47μF 16V M
C1702	QFLC1HJ-104Z	M CAP.	0.1μF 50V J
C1703	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1704-05	QETN1AM-107Z	E CAP.	100μF 10V M
C1706	QFV71HJ-124Z	MF CAP.	0.12μF 50V J
C1707	QFLC1HJ-103Z	M CAP.	0.01μF 50V J

C1714	QCB31HK-103Z	C CAP.	0.01μF 50V K
C1715	QETN1CM-107Z	E CAP.	100μF 16V M
C1716-18	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1719	QETN1HM-475Z	E CAP.	4.7μF 50V M
C1733	QDC31HJ-560Z	C CAP.	56pF 50V J
C1734	QDC31HJ-680Z	C CAP.	68pF 50V J
C1736	QFLC1HJ-103Z	M CAP.	0.01μF 50V J
C1738	QFLC1HJ-102Z	M CAP.	1000pF 50V J

C1740	QCS31HJ-560Z	C CAP.	56pF 50V J
C1741	QETN1HM-105Z	E CAP.	1μF 50V M
△ C1901	QFZ9040-104	MF CAP.	0.1μFAC275V M
△ C1902	QFZ9040-104	MF CAP.	0.1μFAC275V M
△ C1903	QZ9078-102	C CAP.	1000pFAC250V M
△ C1904	QZ9078-102	C CAP.	1000pFAC250V M
△ C1905	QZ9078-102	C CAP.	1000pFAC250V M
△ C1906	QZ9078-102	C CAP.	1000pFAC250V M

△ C1907	QEZ0199-127	E CAP.	120μF 400V M
C1921	QCZ0334-103	C CAP.	0.01μF 500V P
C1922	QCZ0325-271	C CAP.	270pF 2kV P
C1923	QCZ0325-391	C CAP.	390pF 2kV K
C1924	QEH81VM-107	E CAP.	100μF 35V M
C1925	QCZ0325-391	C CAP.	390pF 2kV K
C1926	QFLC1HJ-471Z	M CAP.	470pF 50V J
C1929-30	QFLC1HJ-102Z	M CAP.	1000pF 50V J

C1952	QCZ0325-271	C CAP.	270pF 2kV K
C1953	QCZ0122-561	C CAP.	560pF 2kV K
C1954	QEZ0203-107	E CAP.	100μF 160V M
C1955	QETN1EM-108	E CAP.	1000μF 25V M
C1957	QETN1EM-227Z	E CAP.	220μF 25V M
C1958-60	QETN1EM-476Z	E CAP.	47μF 25V M

Symbol No.	Part No.	Part Name	Description	Local
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CAPACITOR

C1962	QETN1EM-476Z	E CAP.	47μF 25V	M
C1963-64	QETN1CM-107Z	E CAP.	100μF 16V	M
C1966	QETN1AM-228Z	E CAP.	2200μF 10V	M
C1968	QETN1AM-107Z	E CAP.	100μF 10V	M
C1971	QFLC1HJ-104Z	M CAP.	0.1μF 50V	J
C1981	QETN1AM-107Z	E CAP.	100μF 10V	M
C1982	QETN1HM-105Z	E CAP.	1μF 50V	M
△ C1991	QCZ9079-47Z	C CAP.	4700pFAC250V	M

△ C1992	QCZ9079-47Z	C CAP.	4700pFAC250V	M
△ C1993	QCZ9079-47Z	C CAP.	4700pFAC250V	M

TRANSFORMER

△ T1501	QQH0020-00Z	H.V. TRANSF.		
T1502	CE42034-001	H.DRIVE TRANSF.		
△ T1901	CETS116-001J2	SW TRANSF.		

COIL

L1202	QQL244K-270Z	PEAKING COIL		
L1330	QQL244J-101Z	COIL	100μH	
L1350-51	QQL244K-4R7Z	COIL	4.7μH	
L1501	CE41990-001J1	LINEARITY COIL		
L1551	QQLZ018-540	HEATER CHOKE		
L1701	QQL244K-4R7Z	COIL	4.7μH	
L1730	QQL244K-8R2Z	COIL	8.2μH	
L1951-52	QQL424K-560Z	COIL	56μH	

DIODE

D1101	MTZJ12C-T2	ZENER DIODE		
D1121	MTZJ12C-T2	ZENER DIODE		
D1241	1SS133-T2	SI DIODE		
D1243	RGPI0J-5025-T3	SI DIODE		
D1291-92	MTZJ5.1B-T2	ZENER DIODE		
D1401	1SS133-T2	SI DIODE		
D1425	MTZJ5.1B-T2	ZENER DIODE		
D1451-52	1SR124-400A-T2	SI DIODE		
D1501	MTZJ9.1B-T2	ZENER DIODE		
D1502	1SR124-400A-T2	SI DIODE		
D1551	RH15-T3	SI DIODE		
D1591	MTZJ7.5S-T2	ZENER DIODE		
D1592	1SR35-400A-T2	SI DIODE		
D1733-34	MA700A-T2	SI DIODE		
D1735	MTZJ5.1B-T2	ZENER DIODE		
D1801-03	GL2EG6	L.E.D. (GRN)		
△ D1901	D2SBA60	BRIDGE DIODE		
D1921	RU1C-LFC4	SI DIODE		
D1922	MTZJ6.8A-T2	ZENER DIODE		
D1924-25	1SR124-400A-T2	SI DIODE		
D1926	1SS133-T2	SI DIODE		
D1927	MTZJ15A-T2	ZENER DIODE		
D1928	MTZJ10A-T2	ZENER DIODE		
D1951-52	RU3YX-LFC4	SI DIODE		
D1953	RU3AM-LFC4	SI DIODE		
D1954-58	1SS133-T2	SI DIODE		
D1971	MTZJ6.2B-T2	ZENER DIODE		
D1981	MTZJ7.5S-T2	ZENER DIODE		

TRANSISTOR

Q1101	2SA933AS/QR/-T	SI TRANSISTOR		
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Symbol No.	Part No.	Part Name	Description	Local
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TRANSISTOR

Q1121	2SA933AS/QR/-T	SI TRANSISTOR		
Q1203	2SC1740S/QR/-T	SI TRANSISTOR		
Q1220	2SC1740S/QR/-T	SI TRANSISTOR		
Q1250	2SC1740S/QR/-T	SI TRANSISTOR		
Q1301	2SC4722/NP/-	SI TRANSISTOR		
Q1311	2SC4722/NP/-	SI TRANSISTOR		
Q1321	2SC4722/NP/-	SI TRANSISTOR		
Q1350	2SC1740S/QR/-T	SI TRANSISTOR		

Q1401-03	2SC1740S/QR/-T	SI TRANSISTOR		
Q1425	2SA933AS/QR/-T	SI TRANSISTOR		
Q1426	2SC1740S/QR/-T	SI TRANSISTOR		
△ Q1501	BSN274	F.E.T.		H. OUT
Q1502	2SD1876-YD	SI TRANSISTOR		
Q1591	2SC2785/JH/-T	SI TRANSISTOR		
Q1734-36	2SC1740S/QR/-T	SI TRANSISTOR		
Q1801-03	DTA144TSA-T	DIGI TRANSISTOR		

Q1921	2SA933AS/QR/-T	SI TRANSISTOR		
Q1951	2SA966/OY/-T	SI TRANSISTOR		
Q1952	2SC1740S/QR/-T	SI TRANSISTOR		
Q1971-72	2SC1740S/QR/-T	SI TRANSISTOR		
Q1981	2SA949/Y/Z1	SI TRANSISTOR		
Q1982	2SC1740S/QR/-T	SI TRANSISTOR		

IC

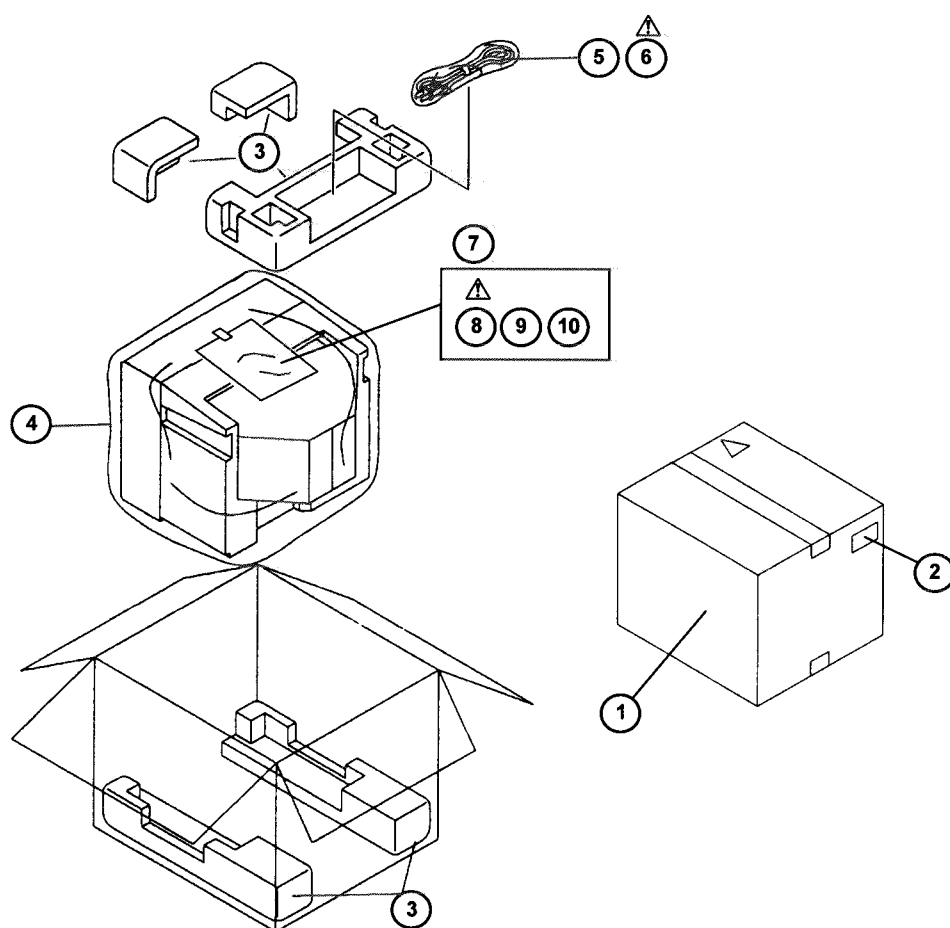
IC1201	TB1226EN	I.C. (DIGI-OTHER)		
IC1202-05	LA7016	I.C. (MONO-ANA)		
IC1421	LA7840	I.C. (MONO-ANA)		
IC1701	L78LR05E-MA	I.C. (MONO-ANA)		
IC1731	M37212M6-121SP	I.C. (MICRO-COMP)		
IC1732	AT24C04-10PC	I.C. (EP-ROM)		
IC1801	GP1U281Q	IFR DETECT UNIT		
△ IC1921	STR-F6653	I.C. (HYBRID)		

IC1951	BA17812T	I C		
IC1952	BA17809T	I.C. (MONO-ANA)		
IC1954	BA17805T	I.C. (MONO-ANA)		
△ IC1971	S1854A	I.C. (MONO-ANA)		

OTHERS

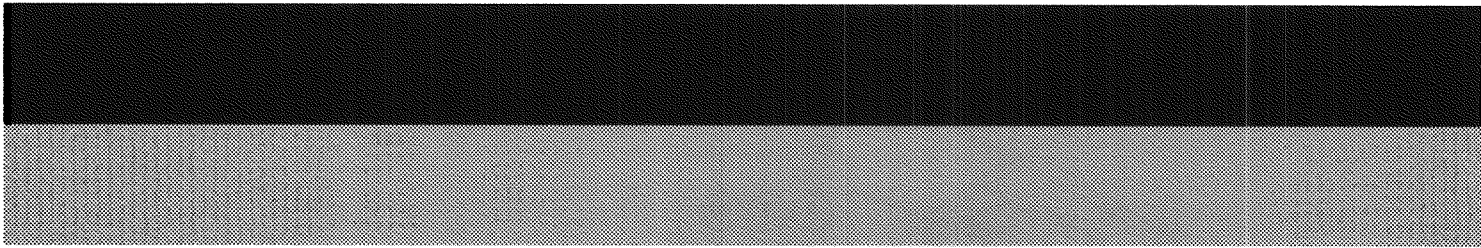
△ CP1951	CM46978-A01-H	L.E.D. HOLDER		
△ CP1952	ICP-N50-Y	I.C. PROTECT		
△ CP1952	ICP-N75-Y	I.C. PROTECT		
△ F1901	QMF51E2-3R15J4	FUSE		3.15A
FC1901-02	CEMG002-001Z	FUSE CLIP		
J1001-02	CEMB021-002	BNC CONNECTOR		
K1921	CE41433-001Z	BEADS CORE		
K1951-53	CE42050-001Z	CORE		
△ LF1901	QQR0813-001	LINE FILTER		
MD1201	CE42599-002	COMB FILTER		
△ PC1921	TLF721F (D4-GR)	I.C. (PH. COUPLER)		
S1401	QSL4A13-C02	LEVER SWITCH		V. CENTER
S1801	QSP1A11-C18Z	PUSH SWITCH		PHASE
S1802	QSP1A11-C18Z	PUSH SWITCH		CHROMA
S1803	QSP1A11-C18Z	PUSH SWITCH		BRIGHT
S1804	QSP1A11-C18Z	PUSH SWITCH		CONTRAST
S1805	QSP1A11-C18Z	PUSH SWITCH		MENU
S1806	QSP1A11-C18Z	PUSH SWITCH		DOWN
S1807	QSP1A11-C18Z	PUSH SWITCH		UP
S1808	QSP1A11-C18Z	PUSH SWITCH		VIDEO.B
S1809	QSP1A11-C18Z	PUSH SWITCH		VIDEO.A
△ S1901	QSP4K21-C01	PUSH SWITCH		POWER
△ SK1301	CE42554-001	C.R.T. SOCKET		
△ TH1901	QAD0101-9R0	P. THERMISTOR		
X1351	QAX0354-001Z	X TAL		
X1731	CST8.00MTW	CER. RESONATOR		

PACKING



PACKING PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
1	CP11613-071-H	PACKING CASE		
2	CP30702-001	REC KEEPING CARD		
3	LC10041-002A-H	CUSHION ASSY	5pcs in 1set	
4	CP30967-002-H	POLY BAG		
5	QPGA012-03005	POLY BAG		
△ 6	QMP1110-244K	POWER CORD		
7	CP30966-001-H	POLY BAG		
△ 8	LCT0234-001A-H	INST BOOK		
9	BT-20104A	SERVICE CARD		
10	BT-51010-1	WARRANTY CARD		



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TM-A13SU-H #4
TM-A13SUW-H #3
TM-A13UCV-H #4



Printed in Japan
VP 9810
DP2051